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OUTSIDE WIRE AND ANTENNA MAINTENANCE AND REPAIR CAREER LADDER. --ETC(U)
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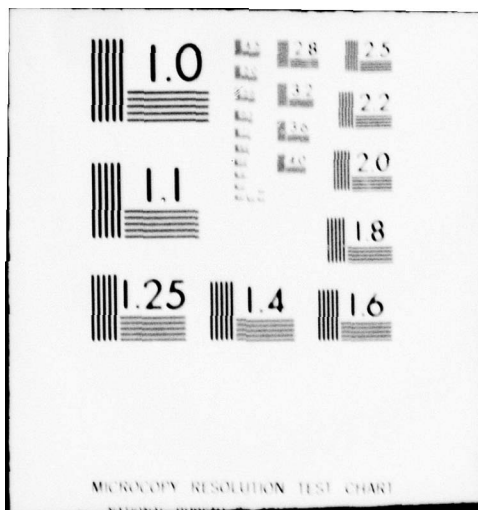
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OUTSIDE WIRE AND ANTENNA MAINTENANCE AND
REPAIR CAREER LADDER.

AFSCs 36130, 36150, 36170, and 36199.

AFPT 90-361-035

11 AUG 1978

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OCCUPATIONAL SURVEY BRANCH

USAF OCCUPATIONAL MEASUREMENT CENTER
LACKLAND AFB TEXAS 78236

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PREFACE

This report presents the results of a detailed Air Force Occupational Survey of the Outside Wire and Antenna Maintenance and Repair career ladder (AFSCs 36130, 36150, 36170, and 36199). The project was directed by USAF Program Technical Training, Volume 2, dated July 1976. Authority for conducting occupational surveys is contained in AFR 35-2. Computer outputs from which this report was produced are available for use by operating and training officials.

The survey instrument was developed by Lieutenant Helen E. Campbell, Inventory Development Specialist. Captain Frank C. Gentner analyzed the survey data and wrote the final report. This report has been reviewed and approved by Lieutenant Colonel Jimmy L. Mitchell, Chief, Airman Career Ladders Analysis Section, Occupational Survey Branch, USAF Occupational Measurement Center, Lackland AFB, Texas 78236.

Computer programs for analyzing the occupational data were designed by Dr. Raymond E. Christal, Occupational and Manpower Research Division, Air Force Human Resources Laboratory (AFHRL) and were written by the Project Analysis and Programming Branch, Computational Sciences Division, AFHRL.

Copies of this report are available to air staff sections, major commands, and other interested training and management personnel upon request to the USAF Occupational Measurement Center, attention of the Chief, Occupational Survey Branch (OMY), Lackland AFB, Texas 78236.

This report has been reviewed and is approved.

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SUMMARY OF RESULTS

1. Survey Coverage: The Outside Wire and Antenna Maintenance and Repair career ladder job inventory was administered during the period December 1977 through April 1978. Survey results are based on responses from 587 of the 886 personnel assigned in the 361X0 career ladder. This represents 62 percent of all career ladder members.
2. Career Ladder Structure: Six major job clusters were identified within the career ladder: one group of team chiefs, one group of supervisors, three groups of personnel performing primarily technical cable and antenna installation and maintenance tasks, and one group of training personnel and technical advisors. In general, the ladder was found to be fairly homogeneous, with the largest differences based on the percentage of management, supervision and training tasks performed, and the percent time spent and members performing cable-versus antenna-related tasks.
3. Career Ladder Progression: Generally, jobs performed by 3- and 5-skill level personnel were technical in nature, with heavy emphasis on cable-related tasks. Seven-skill level respondents spent slightly more than half their time performing management, supervision, and training functions. Technical tasks performed by 7-skill level respondents were antenna-related tasks rather than the cable-related tasks performed by 3- and 5-skill level personnel. Nine-skill level incumbents were primarily branch supervisors and performed few technical tasks.
4. AFMS Differences: First enlistment respondents spent a larger percent of their time on cable-related tasks while those in their third or subsequent enlistment spent more time on antenna-related tasks. More senior members showed increasing emphasis on supervisory and management functions.
5. AFR 39-1 Review: The proposed change of the career ladder title from "Outside Wire and Antenna Maintenance and Repair" to "Cable and Antenna Installation/Maintenance" was in keeping with duties and tasks performed by career ladder members. The proposed AFR 39-1 specialty descriptions were generally accurate and reflected changes in the career ladder appropriately. However, several omissions were noted which, if included in the descriptions, will improve their comprehensiveness. These omissions were in the following areas: open wire, vehicle inspection and maintenance, corrosion control, and maintenance of antenna supports.
6. STS Review: STS 361X0 provided a generally accurate and complete description of the jobs and tasks performed by career ladder respondents. However, the match between the STS and survey data indicates that some refinements to the STS could be made.
7. Comparison to Previous Survey: Both this survey and the earlier 1974 survey reflect very similar career ladder structures and tasks performed. A contrast of the data from the two time periods indicated a very stable career ladder.

OCCUPATIONAL SURVEY REPORT
OUTSIDE WIRE AND ANTENNA MAINTENANCE AND
REPAIR CAREER LADDER
(AFSCs 36130, 36150, 36170, and 36199)

INTRODUCTION

This is a report of an occupational survey of the Outside Wire and Antenna Maintenance and Repair career ladder (AFSCs 36130, 36150, 36170, and 36199) completed by the Occupational Survey Branch, USAF Occupational Measurement Center in August 1978. The previous occupational survey of this career ladder was published during September 1973.

Since the 1973 survey, the career ladder has remained relatively stable. The only significant changes have been the renumbering of the 9-skill level from 36194 to 36199, Outside Wire Installation and Maintenance Superintendent on 30 April 1977, and the title change from "Outside Wire and Maintenance Superintendent" to "Cable and Antenna Installation and Maintenance Superintendent" on 30 April 1978. Currently both the 361X0 (Outside Wire and Antenna Maintenance and Repair) and 361X1 (Cable Splicing and Installation Maintenance) career ladders merge at the 36199 superintendent level.

A proposed change to the AFR 39-1 Specialty Descriptions is presently being coordinated. The proposal would change the career ladder title from Outside Wire and Antenna Maintenance and Repair to Cable and Antenna Systems Installation/Maintenance. In addition, certain duties and tasks would be realigned for clarity and terminology would be updated to reflect changing emphasis in the career ladder from outside wire to cable systems.

The current project is a routine survey of the 361X0 Outside Wire and Antenna Maintenance and Repair career ladder. Topics discussed in this report include: (1) survey methodology, (2) the job structure found within the career ladder and how it relates to skill level and experience groups, (3) comparison of the job structure with career ladder documents such as AFR 39-1 Specialty Job Descriptions and the Specialty Training Standard (STS), and (4) comparison of the current survey with the previous study.

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SURVEY METHODOLOGY

The data collection instrument for this occupational survey was USAF Job Inventory AFPT 90-361-035. The survey instrument from the 1973 study served as the basis for the new task inventory. The previous task list was expanded and refined through a thorough research of career field publications and directives, personal interviews with 14 subject-matter specialists at four bases (Kelly, McClellan, Norton, and Sheppard AFBs), and written reviews from 73 experienced personnel. The final result was a task list consisting of 409 tasks grouped under 16 duty headings and a background section which included information about each respondent such as grade, TAFMS, duty title, and job interest.

Survey Administration

During the period December 1977 through April 1978, consolidated base personnel offices in operational units worldwide administered the inventory booklets to personnel holding the Outside Wire and Antenna Maintenance and Repair DAFSCs. These personnel were selected from a computer generated mailing list obtained from personnel data tapes maintained by the Air Force Human Resources Laboratory (AFHRL). Each individual who completed the inventory first completed an identification and biographical information section, then checked each task performed in their current job.

After checking all tasks performed, each respondent then rated each of these tasks on a nine-point scale showing relative time spent on that task as compared to all other tasks checked. The ratings ranged from one (very-small-amount time spent) through five (about-average time spent) to nine (very-large amount time spent). To determine relative time spent for each task checked by a respondent, all a respondent's ratings are assumed to account for 100 percent of his or her time spent on the job and are summed. Each task rating is then divided by the total task responses and the quotient multiplied by 100. This procedure provides a basis for comparing tasks not only in terms of percent members performing but also in terms of average percent time spent.

Survey Sample

Personnel were selected to participate in this survey so as to insure proper representation across MAJCOM and DAFSC groups. Table 1 reflects the percentage distribution, by major command, of assigned personnel in the career ladder as of April 1978. Also listed in this table is the percent distribution, by major command, of respondents in the final survey sample.

TABLE 1
COMMAND REPRESENTATION OF SURVEY SAMPLE

<u>COMMAND</u>	<u>PERCENT OF PERSONNEL ASSIGNED</u>	<u>PERCENT OF SAMPLE</u>
AFCS	92	87
USAFSS	4	5
USAFE	2	1
ATC	1	2
OTHER	1	5

Table 2 indicates the DAFSC distribution of the survey sample. The 552 respondents making up this final sample represent 62 percent of the 882 personnel assigned to this career ladder Air Force-wide. Generally, it appears that the survey sample provides good representation from all skill level DAFSCs.

TABLE 2
DAFSC DISTRIBUTION OF SURVEY SAMPLE

<u>DAFSC</u>	<u>NUMBER ASSIGNED</u>	<u>NUMBER SAMPLED</u>	<u>PERCENT SAMPLED</u>
36130	112	66	59%
36150	563	368	65%
36170	211	118	56%
TOTAL	886	552	62%
36199	*	23	*

* Nine-skill level personnel superintend work in two career ladders (361X0 and 361X1); therefore, specific authorizations are not available for each ladder. Of 74 authorized 36199 personnel, twenty-three were sampled who indicated they supervised 361X0 personnel.

In Table 3, the total active federal military service (TAFMS) survey distribution is presented. Notice that 50 percent of the survey sample are in their first enlistment.

TABLE 3

TAFMS DISTRIBUTION OF SURVEY SAMPLE

<u>MONTHS TIME IN SERVICE</u>	<u>6-48</u>	<u>49-96</u>	<u>97-144</u>	<u>145-192</u>	<u>193-240</u>	<u>240+</u>
NUMBER IN FINAL SAMPLE	295	98	58	48	39	45
PERCENT OF SAMPLE	50%	17%	10%	8%	7%	8%

CAREER LADDER STRUCTURE

A key aspect of the USAF occupational analysis program is to examine the actual structure of career ladders--what people are doing in the field, rather than how official career field documents say they are organized. This analysis is made possible by the Comprehensive Occupational Data Analysis Programs (CODAP). CODAP consists of 40 programs which generate a number of statistical products used in the analysis of career ladders. The primary product used to analyze career ladders is a hierarchical clustering of all jobs based on the similarity of tasks performed and relative time spent. This process permits identification of the major types of work being performed in the occupation (career ladder) and is analyzed in terms of the job description and background data of each type of job. This information is then used to examine the accuracy and completeness of present career ladder documents (AFR 39-1 specialty descriptions, specialty training standards, etc.) and to formulate an understanding of current utilization patterns.

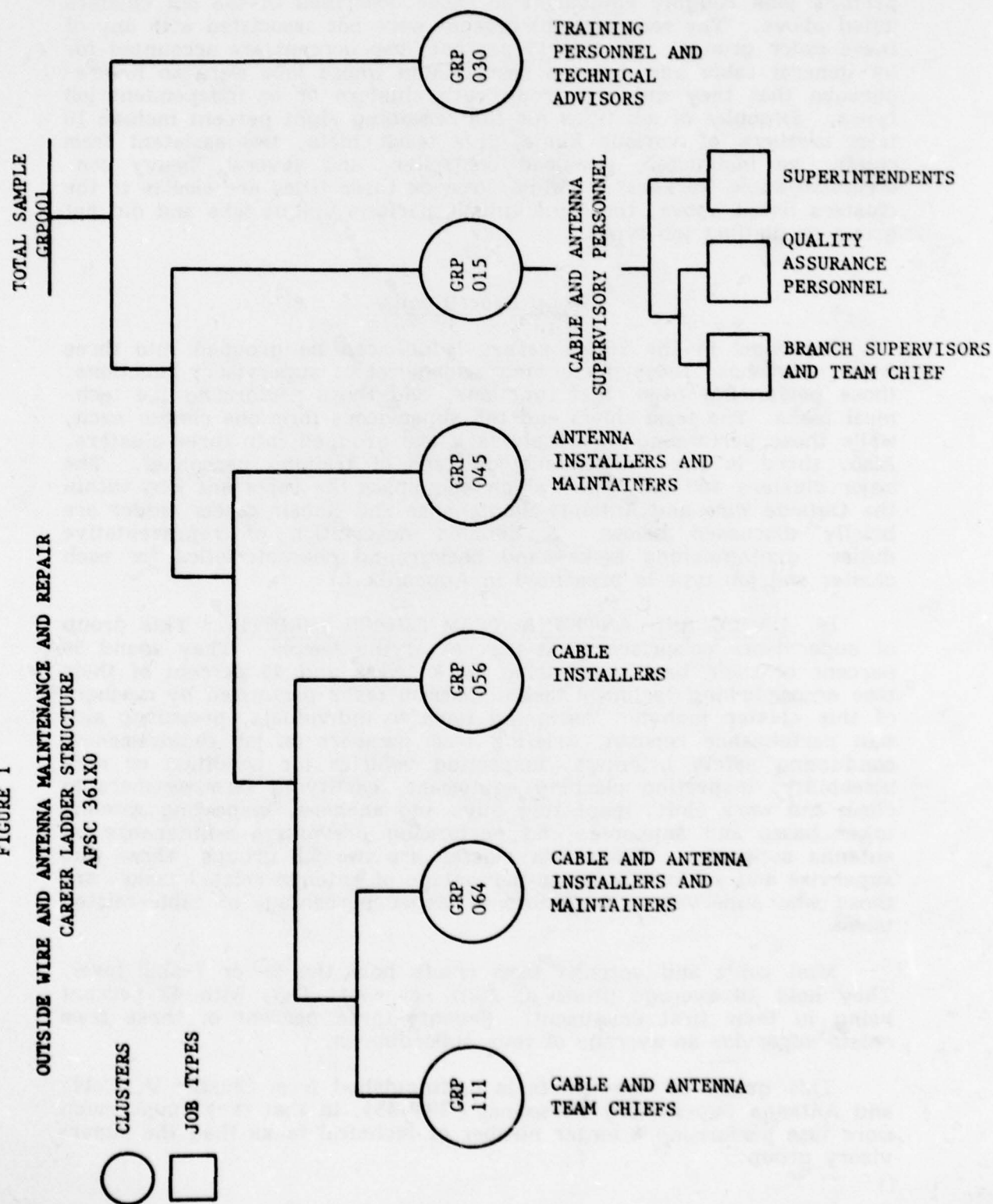
The basic identifying group used in the hierarchical job structure is the Job Type. A job type is a group of individuals who perform many of the same tasks and spend similar amounts of time performing these tasks. A Cluster is a group of job types which have a substantial degree of similarity. Finally, there are often specialized jobs that are too dissimilar to be grouped into any cluster. These unique groups are labeled Independent Job Types.

Based on task similarity and relative percent time spent, the best division of the jobs performed in the 361X0 career ladder is illustrated in Figure 1. These job clusters and job types are listed below. The GRP number shown beside each title is a reference to computer printed information included for use by classification and training officials.

- I. CABLE AND ANTENNA TEAM CHIEFS (GRP111, N=48)
- II. CABLE AND ANTENNA INSTALLERS AND MAINTAINERS (GRP064, N=277)
- III. CABLE INSTALLERS (GRP056, N=22)
- IV. ANTENNA INSTALLERS AND MAINTAINERS (GRP045, N=91)
- V. CABLE AND ANTENNA SUPERVISORY PERSONNEL (GRP015, N=83)
 - a. Branch Supervisors and Team Chiefs (GRP049, N=50)
 - b. Quality Assurance Personnel (GRP076, N=13)
 - c. Superintendents (GRP019, N=12)
- VI. TRAINING PERSONNEL AND TECHNICAL ADVISORS (GRP030, N=8)

FIGURE 1

OUTSIDE WIRE AND ANTENNA MAINTENANCE AND REPAIR
CAREER LADDER STRUCTURE
AFSC 361X0



Ninety percent of the respondents in the sample were found to perform jobs roughly equivalent to those described in the six clusters listed above. The remaining 10 percent were not associated with any of these major groups. Of this 10 percent, two percent are accounted for by general cable and antenna respondents whose jobs were so heterogeneous that they did not group with clusters or as independent job types. Examples of job titles for the remaining eight percent include 16 team members of various kinds, five team chiefs, two assistant team chiefs, an instructor, workload controller, and several "heavy construction cable workers". While some of these titles are similar to the clusters listed above, these individuals perform unique jobs and did not group as distinct job types.

Group Descriptions

Personnel in the 361X0 career ladder can be grouped into three major divisions: those performing managerial or supervisory functions, those performing team chief functions, and those performing the technical tasks. The team chiefs and the supervisors form one cluster each, while those performing technical tasks are grouped into three clusters. Also, there is one independent job type of training personnel. The major clusters and job types which encompass the important jobs within the Outside Wire and Antenna Maintenance and Repair career ladder are briefly discussed below. A detailed description of representative duties, distinguishing tasks, and background characteristics for each cluster and job type is presented in Appendix A.

1. CABLE AND ANTENNA TEAM CHIEFS (GRP111). This group of supervisors comprises eight percent of the sample. They spend 56 percent of their time supervising work teams and 44 percent of their time accomplishing technical tasks. Common tasks performed by members of this cluster include: assigning work to individuals, preparing airman performance reports, briefing team members on job requirements, conducting safety briefings, inspecting vehicles for condition or serviceability, inspecting climbing equipment, certifying team members to climb and work aloft, inspecting guys and anchors, inspecting antenna tower bases and supports, and performing preventive maintenance on antenna supports. Within this cluster are two job groups: those who supervise and perform a larger percentage of antenna-related tasks, and those who supervise and perform a larger percentage of cable-related tasks.

Most cable and antenna team chiefs hold the 5- or 7-skill level. They hold an average grade of staff sergeant (E-5) with 42 percent being in their first enlistment. Seventy-three percent of these team chiefs supervise an average of four subordinates.

This group of team chiefs is distinguished from Cluster V, Cable and Antenna Supervisory Personnel (GRP 45), in that they spend much more time performing a larger number of technical tasks than the supervisory group.

II. CABLE AND ANTENNA INSTALLERS AND MAINTAINERS (GRP064). This group is the largest cluster in the sample (47 percent) and performs the largest number of tasks of any cluster in this career ladder. Personnel in this cluster perform primarily technical tasks. They spend 55 percent of their time installing cables, and an additional 37 percent installing and maintaining antennas. Common tasks performed include: climbing cable support structures or poles; loading, transporting, or unloading cable reels; removing or replacing underground cables; pumping or cleaning manholes; installing buried cable markers; digging trenches for buried cable systems; climbing antenna supports; and testing guy tension.

Although all subgroup members of this cluster perform primarily the same tasks and duties, some differences in relative time spent on duties were noticed. For example, some subgroups spent more time performing antenna tasks; others spent more time on buried, underground, or aerial cable; others on wire antennas or radome tasks; while still others performed more vehicle-related tasks. These minor differences may be the result of current work project assignment variance at the time of the survey. One subgroup of particular interest was a group of eight technical training instructors. Although they performed more training tasks than other subgroups in this cluster, they still were grouped with those performing technical tasks because of the large number of technical tasks these instructors demonstrated to technical training students. Regardless of the minor differences mentioned above, members of this cluster spend most their time performing technical cable installation, and antenna installation and maintenance tasks. These subgroups are more similar than different.

Cable and Antenna Installers and Maintainers hold an average grade of 3.6. Most are in their first enlistment (71 percent), have a 5-skill level (77 percent), and are stationed in the CONUS (82 percent). Only 11 percent of them supervise.

This cluster differs from other technical personnel clusters as the cluster titles indicate. For example: Antenna Installers and Maintainers (GRP045) perform antenna-related tasks more exclusively than members of this cluster. Cable and Antenna Installers and Maintainers (GRP064) differ from Cable Installers (GRP056) in that the Cable Installers spend most their time on cable-related duties and perform cable installation tasks most frequently.

III. CABLE INSTALLERS (GRP056). This cluster comprises four percent of the sample and consists of personnel who perform the heavy construction tasks of cable installation. Most of their time is spent installing underground cable (38 percent), buried cable (23 percent) and installing, maintaining, removing, and recovering aerial cable systems (17 percent) for a grand total of 78 percent of their time on cable-related duties. They also spent time maintaining and inspecting outside plant construction vehicles (four percent), and a small amount of time on antenna-related duties (five percent). Common tasks include: installing pole steps and footings, climbing cable support structures or

poles, distributing aerial cable hardware, grounding aerial cable spacers or supports, installing guys on pole lines, digging anchor or pole holes by hand, and removing or replacing aerial and underground cables.

This cluster is composed of the most junior airmen in the sample (average grade E-3) who primarily have entered the career field by directed duty assignment (68 percent), and who perform the lowest average number of tasks of any cluster or job type. All are assigned within the CONUS and hold the 3- or 5-skill level. They also have the lowest average time in the service of any cluster in the sample.

IV. ANTENNA INSTALLERS AND MAINTAINERS (GRP045). This cluster consists of 19 percent of the total sample. Members primarily work on antenna installation and maintenance. In addition to spending 48 percent of their time on antenna-related duties, they also spend 20 percent on cable duties and 16 percent on supervisory duties. Common tasks include: inspecting guys and anchors, antenna supports and fixtures, and tower bases; climbing antenna supports; performing preventive maintenance on antenna supports; performing corrosion control on antenna and antenna support systems; testing coaxial cables for resistance insulation or proper continuity; installing, removing, or replacing coaxial connectors; and climbing cable support structures or poles.

Within this cluster, subgroups were identified in which members spend more time emphasizing different duties. For example, some spend more time performing coaxial-related tasks, other more time on aerial cable, others more time performing waveguide tasks, and still others spend more time on wire antenna tasks. Two subgroups also performed a number of underground cable-related tasks. Since most antenna-related tasks were common to all subgroups and comprised the majority of their time spent, no clearly distinguishing factors other than time spent on duties and percent members performing tasks were identified. Feedback from the field suggests that these differences were most likely a function of the work assignment at the time of the survey.

Most Antenna Installers and Maintainers hold the 5-skill level. They have an average grade of 3.9 and only 25 percent of them directly supervise personnel. This group had the largest concentration of personnel assigned to USAF Security Service (15 percent) of any of the clusters, which would be expected since those assigned to Security Service primarily work on antennas.

Antenna Installers and Maintainers (GRP045) differ from other technically oriented clusters in their emphasis on antenna-related tasks. Even though they do spend 20 percent of their time performing cable-related duties, this figure is well below that of Cable and Antenna Installers and Maintainers (GRP064) who spend 55 percent of their time installing cable, and Cable Installers (GRP056) who spend 78 percent of their time on cable-related duties.

V. CABLE AND ANTENNA SUPERVISORY PERSONNEL (GRP015). This group of supervisory personnel comprised 14 percent of the total sample and encompassed the majority of more senior supervisors in this career ladder. Personnel in this cluster spend most their time performing management and supervisory duties, with only a small amount of emphasis on technical tasks. Common tasks include: drafting correspondence and preparing APRs; conducting or participating in staff meetings; researching procedures to resolve technical problems; insuring compliance with technical order specifications and with directives; assigning and scheduling work to individuals; establishing personnel requirements; and verifying scheme packages for accuracy and adequacy. Three job type groups were identified within this cluster: branch supervisors and team chiefs, quality assurance personnel, and superintendents.

Va. Branch Supervisors and Team Chiefs (GRP049). This job type consisted of supervisors who spend more time on management and supervisory tasks than on performing technical tasks. Common tasks include: assigning work to individuals, preparing APRs, reviewing progress of individuals taking career development courses, counseling individuals on training progress, conducting OJT, counseling newly assigned airmen on career progression and educational opportunities, directing scheme installation, relocation, or removal actions and arranging for transportation of equipment or personnel.

Vb. Quality Assurance Personnel (GRP049). This job type group consists of personnel who perform evaluation and quality assurance functions. Common tasks include: reviewing or evaluating inspection findings, preparing or processing quality assurance or quality control forms, preparing inspection reports, reviewing or evaluating maintenance or installation reports, and performing in-progress inspections during installations.

Vc. Superintendents (GRP019). This job type group spent 79 percent of their time on directing and implementing, and organizing and planning duties. Common tasks include: establishing personnel requirements, coordinating communication requirement with base or tenant units, directing compliance with maintenance directives, evaluating suggestions, preparing APRs, researching procedures to resolve technical problems, computing costs of manpower, materials, or equipment, and preparing actions to resolve personnel problems such as manning levels.

These three job types have in common their emphasis on management and supervisory duties. They perform few technical tasks. Individuals in this cluster primarily hold the 7- or 9-skill level and have an average grade of 6.9. None are in their first enlistment. One unusual statistic about this group of supervisors and managers is that only 31 percent state that they directly supervise personnel.

VI. TRAINING PERSONNEL AND TECHNICAL ADVISORS (GRP030). This small and heterogenous group consists of team chief academy instructors, training supervisors, and technical advisors. As would be expected, members of this group spend 71 percent of their time performing training-related duties and 16 percent of their time on directing and implementing duties. Common tasks include: providing training or technical assistance to Air National Guard or Air Force Reserve units, planning aids for training, preparing lesson plans, evaluating needs of individual or group training, conducting classroom training, and administering or scoring tests.

This group's average grade was E-6, 63 percent hold the 7-skill level, and none of them supervise. All are stationed in the CONUS and assigned within AFCS.

This group is distinguished from all other groups by their emphasis on training, and their lack of performing technical tasks. They contrast with the technical training instructors in Cluster II in that their training is more academically oriented whereas the technical training instructors spend much of their time using the demonstration-performance method of instructing the technical tasks performed in the field.

Summary

The 361X0 personnel who perform the career ladder's technical tasks are grouped into three clusters which emphasize varying degrees of cable- or antenna-related duties and tasks. Team chiefs perform both technical and supervisory tasks, while supervisory personnel spend most their time on supervisory duties. Also, a small group of training personnel and technical advisors were identified. Selected demographic data for these clusters and job groups is presented in Table 4. Also, Table 5 presents a comparison of satisfaction indices by career ladder functional groups. For more detailed background information, consult Appendix A.

TABLE 4

SELECTED BACKGROUND DATA ON CAREER LADDER FUNCTIONAL GROUPS

	CABLE AND ANTENNA TEAM CHIEFS	CABLE AND ANTENNA INSTALLERS AND MAINTAINERS	CABLE INSTALLERS	ANTENNA INSTALLERS AND MAINTAINERS	CABLE AND ANTENNA SUPERVISORY PERSONNEL	TRAINING PERSONNEL AND TECHNICAL ADVISORS
NUMBER IN GROUP:	48	277	22	91	83	8
PERCENT OF SAMPLE:	8%	47%	4%	16%	14%	1%
PERCENT LOCATED IN CONUS:	40%	82%	100%	52%	69%	100%
DAFSC DISTRIBUTION:						
36130	2%	13%	18%	8%	6%	0%
36150	40%	77%	77%	76%	15%	25%
36170	56%	8%	0%	13%	52%	63%
36199	2%	1%	0%	1%	23%	12%
NOT REPORTED	0%	1%	5%	2%	4%	0%
AVERAGE GRADE:	5.1	3.6	3.1	3.9	6.3	6.0
AVERAGE TIME IN CAREER FIELD:	110	41	18	51	175	138
AVERAGE TIME IN SERVICE:	139	51	28	66	205	197
PERCENT IN FIRST ENLISTMENT:	42%	71%	86%	52%	5%	0%
PERCENT SUPERVISING:	73%	11%	0%	25%	60%	0%
AVERAGE NUMBER OF TASKS:	153	159	40	55	60	17
JOB DIFFICULTY INDEX:	17.1	14.9	6.4	10.4	12.8	12.7

TABLE 5

COMPARISON OF JOB SATISFACTION INDICES BY CAREER LADDER FUNCTIONAL GROUPS
(PERCENT MEMBERS RESPONDING)

	CABLE AND ANTENNA TEAM CHIEFS	CABLE AND ANTENNA INSTALLERS AND MAINTAINERS	CABLE INSTALLERS	ANTENNA INSTALLERS AND MAINTAINERS	CABLE AND ANTENNA SUPERVISORY PERSONNEL	TRAINING PERSONNEL AND TECHNICAL ADVISORS
EXPRESS JOB INTEREST:						
DULL	6	7	27	18	7	0
SO-SO	15	14	23	19	17	0
INTERESTING	75	74	50	63	69	100
NOT REPORTED	4	5	0	0	7	0
PERCEIVED UTILIZATION OF TALENTS:						
LITTLE OR NOT AT ALL	8	18	36	32	18	0
FAIRLY WELL TO VERY WELL	61	74	64	64	52	75
EXCELLENTLY OR PERFECTLY	31	7	0	4	25	25
NOT REPORTED	0	1	0	0	5	0
PERCEIVED UTILIZATION OF TRAINING:						
LITTLE OR NOT AT ALL	10	12	36	33	18	12.5
FAIRLY WELL TO VERY WELL	52	74	64	61	51	75
EXCELLENTLY OR PERFECTLY	36	13	0	6	28	12.5
NOT REPORTED	2	1	0	0	3	0

ANALYSIS OF DAFSC GROUPS

In conjunction with identifying the job structure of the career ladder, it is important to examine skill level differences of members and relate these differences back to the job structure. In addition, this information can be compared to the career ladder documents such as AFR 39-1 specialty descriptions and the Specialty Training Standard (STS) in order to determine how accurately these documents reflect what career ladder personnel are actually doing in the field.

Table 6 reflects the relative percent time spent by skill level groups on each duty in the inventory. As would be expected, the management, supervision, and administration duties show increasing emphasis with higher skill levels, while the percent time spent on technical duties is greater for the 3- and 5-skill level airmen. Vehicle maintenance and inspection also is lower for higher skill level airmen. Personnel in this career ladder as a whole, and particularly those at the 3- and 5-skill level, spend more time on cable-related functions than on antenna-related functions.

Skill Level Descriptions

DAFSCs 36130 and 36150. Three and 5-skill level DAFSC personnel perform essentially the same job. They spend over 50 percent of their time installing, maintaining, removing, and recovering aerial cable systems and antenna supports, and installing underground cable systems. Five-skill level personnel perform an average of 114 tasks while 3-skill level airmen perform an average of only 85 tasks. Eighty percent of 3-skill level airmen and 72 percent of 5-skill level personnel serve as team members, and only eight percent of 36150s serve as team chiefs.

Table 7 reflects the distribution of each DAFSC group across the functional groups identified in the CAREER LADDER STRUCTURE Section. Most 3- and 5-skill level personnel fall into the Cable and Antenna Installer and Maintainer cluster (GRP064), with smaller percentages also grouping into the Antenna Installers and Maintainers cluster (GRP045).

Tables 8 and 9 present tasks frequently performed by 3- and 5-skill level personnel. These tasks are primarily construction tasks such as digging trenches, loading cable reels, climbing cable support structures or poles, etc. Antenna-related tasks were noticeably absent among the 3-skill level groups (See Table 8).

Contrasting the 3- and 5-skill level, 3-skill level personnel spend more time installing, maintaining, removing, and recovering aerial cable systems, while 5-skill level airmen concentrate more time on antenna supports and conducting on-the-job training (OJT) (See Table 6). Table 10 presents the tasks which most clearly distinguish between 3-

and 5-skill level airmen in terms of percent members performing tasks. Five-skill level personnel have the greatest difference from 3-skill level airmen in the antenna-related tasks where larger percentages of them perform tasks such as: installing tower grounding systems; loading, transporting, or unloading antenna support towers; testing guy tension; and performing corrosion control procedures on antenna systems. This contrast is in agreement with Table 6 which illustrates that 5-skill level personnel spend more time on antenna-related duties.

DAFSC 36170. Seven-skill level personnel spend over 63 percent of their time performing management, supervision, and training functions (See Table 6). The remaining 37 percent of their time is spent on technical tasks, with special emphasis on installing, maintaining, removing, and recovering antenna supports. They spend the most time of any DAFSC group performing team chief duties (Duty E). Seven-skill level personnel perform the largest average number of tasks (119) of any DAFSC in this career ladder, but this is only slightly higher than the 5-skill level's average of 114 tasks. Forty-eight percent of 36170s identify themselves as team chiefs, 11 percent as branch chiefs, and six percent as quality assurance personnel.

Functional job groups into which 7-skill level personnel most frequently fall are Cable and Antenna Supervisory Personnel (GRP015), Cable and Antenna Team Chiefs (GRP111), and Cable and Antenna Installers (GRP064). No 7-skill level personnel fell into the group of Cable Installers (GRP056). For a comparison and the percent in each functional group, consult Table 7.

Table 11 lists tasks most frequently performed by 7-skill level personnel. In addition to the expected management, supervision, and training tasks, there are also a number of antenna-related or quality assurance tasks. These tasks, however, are primarily supervisory in nature such as those involving inspecting and insuring accomplishment of tasks. Notice also the distinct lack of cable-related tasks.

Tasks most clearly distinguishing between 5- and 7-skill level personnel are presented in Table 13.

DAFSC 36199. DAFSC 36199 personnel receive their experience in either the 361X0 or 361X1 career ladders. As might be expected, the 36199 personnel spend only 11 percent of their time performing technical duties, and 89 percent of their time performing management, supervision, and training functions (See Table 6). Also as expected, most of the 9-skill level's time is spent on higher level management duties as opposed to performing team chief functions. Fifty-seven percent of 9-skill level personnel report being branch supervisors, as opposed to only 11 percent of 7-skill level personnel.

Seventy-eight percent of 36199s clustered with Cable and Antenna Supervisory Personnel (GRP015). The remaining 22 percent were scattered among the remaining technical and other jobs (See Table 7).

The shift in management level from the 7- to the 9-skill level is also seen in the type of tasks performed by 60 percent of 36199 personnel listed in Table 12.

The 36199 personnel perform an average of only 66 tasks as opposed to the 119 performed by 36170s. All tasks listed in Table 12 are management and supervision tasks, as opposed to the numerous technical tasks performed by 7-skill level personnel listed in Table 11. Further, the type of management appears to be higher-level office type such as: conducting staff meetings; drafting correspondence; computing costs of manpower, material, or equipment; and establishing equipment and personnel requirements. Tasks which most clearly distinguish between 36170s and 36199s are listed in Table 14.

Summary of DAFSC Groups

DAFSC 361X0 personnel were found to perform similar technical tasks from the 3- to the 7-skill level. Airmen holding higher skill level perform more tasks, and 7-skill level personnel take on management- and inspection-related tasks. The 7-skill level personnel serve primarily as team or branch chiefs. Superintendents (9-skill levels) perform primarily management tasks and serve as branch chiefs.

TABLE 6

PERCENT TIME SPENT PERFORMING DUTIES BY DAFSC GROUPS

DUTIES	DAFSC 361X0 (N=587)	DAFSC 36130 (N=66)	DAFSC 36150 (N=368)	DAFSC 36170 (N=118)	DAFSC 36199 (N=23)
<u>MANAGEMENT, SUPERVISION, AND ADMINISTRATION</u>					
A ORGANIZING AND PLANNING	4	2	2	7	14
B DIRECTING AND IMPLEMENTING	9	4	5	19	39
C EVALUATING AND PERFORMING QUALITY ASSURANCE FUNCTIONS	4	3	2	8	17
D TRAINING	5	1	3	10	13
E PERFORMING TEAM CHIEF OR FLIGHT CHIEF FUNCTIONS	5	3	4	11	6
TOTAL	27	13	16	55	89
<u>VEHICLE MAINTENANCE AND INSPECTION</u>					
F MAINTAINING AND INSPECTING OUTSIDE PLANT CONSTRUCTION VEHICLES	5	5	5	4	2
<u>CABLE-RELATED FUNCTIONS</u>					
G INSTALLING, MAINTAINING, REMOVING, AND RECOVERING AERIAL CABLE SYSTEMS	18	29	20	8	2
H INSTALLING UNDERGROUND CABLE SYSTEMS	11	14	13	5	1
I INSTALLING AND MAINTAINING BURIED CABLE SYSTEMS	8	10	9	4	1
J INSTALLING, MAINTAINING AND REMOVING OPEN WIRE TRANSMISSION LINES	2	3	3	1	-
TOTAL	39	56	45	18	4
<u>ANTENNA-RELATED FUNCTIONS</u>					
K INSTALLING AND REMOVING COAXIAL TRANSMISSION LINES	6	6	7	4	1
L INSTALLING, MAINTAINING, REMOVING, AND RECOVERING ANTENNA SUPPORTS	16	14	19	13	3
M INSTALLING AND REMOVING WIRE ANTENNAS	3	2	3	2	1
N INSTALLING, MAINTAINING, AND REMOVING PARABOLIC ANTENNAS	1	1	1	1	-
O INSTALLING AND MAINTAINING RADOMES	1	2	2	1	-
P INSTALLING WAVEGUIDES	2	1	2	2	-
TOTAL	29	26	34	23	5

TABLE 7

PERCENT MEMBERS PERFORMING CAREER LADDER JOBS BY DAFSC GROUPS

JOB GROUP	DAFSC 361X0 (N=587)	DAFSC 36130 (N=66)	DAFSC 36150 (N=368)	DAFSC 36170 (N=118)	DAFSC 36199 (N=23)
CABLE AND ANTENNA TEAM CHIEFS (GRP 111)	8	2	5	23	4
CABLE AND ANTENNA INSTALLERS AND MAINTAINERS (GRP 64)	47	55	57	20	4
CABLE INSTALLERS (GRP 56)	4	6	4	0	0
ANTENNA INSTALLERS AND MAINTAINERS (GRP 45)	16	11	18	10	4
CABLE AND ANTENNA SUPERVISORY PERSONNEL (GRP 15)	14	8	2	35	78
TRAINING PERSONNEL AND TECHNICAL ADVISORS (GRP 30)	1	0	1	4	4
PERCENT ACCOUNTED FOR IN JOB CLUSTERS	90	82	87	92	94
OTHER JOBS	10	18	13	8	6

TABLE 8

TASKS PERFORMED BY 60 PERCENT OR MORE OF DAFSC 36130 PERSONNEL

TASK TITLE	PERCENT PERFORMING
G1 CLIMB CABLE SUPPORT STRUCTURES OR POLES	86
G11 INSPECT CLIMBING EQUIPMENT	86
G52 TIE KNOTS OR HITCHES IN ROPE	79
G32 LOAD, TRANSPORT, OR UNLOAD CABLE REELS	70
I4 DIG TRENCHES FOR BURIED CABLE SYSTEMS	67
G13 INSTALL ANCHORS	67
G15 INSTALL GUYS ON POLE LINES	67
F2 COMPLETE OPERATOR'S INSPECTION GUIDE AND TROUBLE REPORT FORMS (AFTO FORMS 373 OR 374)	64
G12 INSTALL AERIAL CABLE HARDWARE	64
G3 DIG ANCHOR OR POLE HOLES USING POWER EQUIPMENT	64
G37 MEASURE STRAND TENSION	64
I11 INSTALL BURIED CABLES USING OPEN TRENCH METHODS	62
H3 CLEAN OR ROD DUCTS	61
G18 INSTALL LIGHTNING OR GROUNDING PROTECTION ON TELEPHONE POLES	61
G22 INSTALL POLE STEPS	61

TABLE 9

TASKS PERFORMED BY 63 PERCENT OR MORE OF DAFSC 36150 PERSONNEL

TASK TITLE	PERCENT PERFORMING
G11 INSPECT CLIMBING EQUIPMENT	84
G52 TIE KNOTS OR HITCHES IN ROPE	82
L2 CLIMB ANTENNA SUPPORTS	81
G1 CLIMB CABLE SUPPORT STRUCTURES OR POLES	80
I1 BACKFILL TRENCHES	71
I4 DIG TRENCHES FOR BURIED CABLE SYSTEMS	70
L20 INSPECT GUYS AND ANCHORS	68
L53 TEST GUY TENSION	67
H21 POSITION CABLE REELS ON JACKS	65
I11 INSTALL BURIED CABLES USING OPEN TRENCH METHODS	65
F10 INSPECT VEHICLES	65
G32 LOAD, TRANSPORT, OR UNLOAD CABLE REELS	65
F2 COMPLETE OPERATOR'S INSPECTION GUIDE AND TROUBLE REPORT FORMS (AFTO FORMS 373 OR 374)	64
H25 PULL IN CABLES	63
H28 REMOVE OR REPLACE UNDERGROUND CABLES	63
G13 INSTALL ANCHORS	63

TABLE 10

TASKS WHICH MOST CLEARLY DISTINGUISH BETWEEN 36130 AND 36150 PERSONNEL
(PERCENT MEMBERS PERFORMING)

TASKS	DAFSC 36130 (N=66)	DAFSC 36150 (N=368)	DIFFERENCE
L33 INSTALL TOWER GROUNDING SYSTEMS	21	47	-26
P1 ASSEMBLE OR DISASSEMBLE WAVEGUIDES	11	35	-24
L35 LOAD, TRANSPORT, OR UNLOAD ANTENNA SUPPORT TOWERS	12	36	-24
L53 TEST GUY TENSION	44	67	-23
L38 PERFORM CORROSION CONTROL PROCEDURES ON ANTENNA SYSTEMS	33	56	-23
L40 PLUMB ANTENNA SUPPORTS OR TENSION GUY	35	57	-22
L54 TEST PLUMB OF ANTENNA SUPPORTS	24	46	-22
L2 CLIMB ANTENNA SUPPORTS	59	81	-22
L1 CHECK PLUMB OF ANTENNA SUPPORTS	36	58	-22
K7 INSTALL COAXIAL CONNECTORS	39	61	-22
H24 PREPARE CORE HITCHES	24	46	-22
L30 INSTALL OBSTRUCTION LIGHTNING ON ANTENNA SUPPORTS	17	38	-21
D9 DEMONSTRATE OPERATION OF EQUIPMENT	11	31	-20
L21 INSPECT OBSTRUCTION LIGHTNING	30	50	-20
L37 PERFORM CORROSION CONTROL ON ANTENNA SUPPORT SYSTEMS	41	61	-20
K17 TAB COAXIAL CABLES	26	46	-20
K12 REMOVE OR REPLACE AERIAL COAXIAL CABLES	21	41	-20

TOTAL NUMBER OF TASKS EXCEEDING 10 PERCENT DIFFERENCE: 88

AVERAGE NUMBER OF TASKS PERFORMED BY 36130 PERSONNEL: 85

AVERAGE NUMBER OF TASKS PERFORMED BY 36150 PERSONNEL: 114

TABLE 11

TASKS PERFORMED BY 60 PERCENT OR MORE OF DAFSC 36170 PERSONNEL

TASK TITLE	PERCENT PERFORMING
B4 ASSIGN WORK TO INDIVIDUALS	79
B24 PREPARE AIRMAN PERFORMANCE REPORTS (APR)	75
D6 CONDUCT ON-THE-JOB TRAINING (OJT)	70
C6 INSPECT VEHICLES FOR CONDITION OR SERVICEABILITY	68
F2 COMPLETE OPERATOR'S INSPECTION GUIDE AND TROUBLE REPORT FORM (AFTO FORMS 373 OR 374)	67
L18 INSPECT ANTENNA SUPPORTS	66
G11 INSPECT CLIMBING EQUIPMENT	65
L19 INSPECT ANTENNA TOWER BASES	65
L1 CHECK PLUMB OF ANTENNA SUPPORTS	65
D7 COUNSEL INDIVIDUALS ON TRAINING PROGRESS	64
L20 INSPECT GUYS AND ANCHORS	64
C7 INSURE COMPLIANCE WITH TECHNICAL ORDER (TO) SPECIFICATIONS	64
L17 INSPECT ANTENNA SUPPORT FIXTURES	64
L2 CLIMB ANTENNA SUPPORTS	62
E9 CONDUCT SAFETY BRIEFINGS	60
E4 BRIEF TEAM MEMBERS ON JOB REQUIREMENTS	60

TABLE 12

TASKS PERFORMED BY 60 PERCENT OR MORE OF DAFSC 36199 PERSONNEL

TASK TITLE	PERCENT PERFORMING
B5 CONDUCT OR PARTICIPATE IN STAFF MEETINGS	83
B12 DRAFT CORRESPONDENCE	74
B22 ORIENT NEWLY ASSIGNED PERSONNEL	74
B24 PREPARE AIRMAN PERFORMANCE REPORTS (APR)	74
B30 RESEARCH PROCEDURES TO RESOLVE TECHNICAL PROBLEMS	70
B40 VERIFY SCHEME PACKAGES FOR ACCURACY AND ADEQUACY	65
A1 COMPUTE COSTS OF MANPOWER, MATERIALS, OR EQUIPMENT	65
A10 ESTABLISH EQUIPMENT REQUIREMENTS	65
A12 ESTABLISH OPERATIONAL PROCEDURES, OFFICE INSTRUCTIONS, OR MAINTENANCE OPERATING INSTRUCTIONS (MOI)	65
A13 ESTABLISH PERSONNEL REQUIREMENTS	61
B8 DIRECT COMPLIANCE WITH MAINTENANCE DIRECTIVES	61
B6 CONDUCT STAFF STUDIES	61
C19 REVIEW OR EVALUATE MAINTENANCE OR INSTALLATION REPORTS	61
B15 INITIATE PERSONNEL ACTION REQUESTS	61
A4 DESIGN METHODS TO IMPROVE INSTALLATION OR MAINTENANCE PROCEDURES	61

TABLE 13

TASKS WHICH MOST CLEARLY DISTINGUISH BETWEEN 36150 AND 36170 PERSONNEL

TASKS	DAFSC 36150 (N=368)	DAFSC 36170 (N=118)	DIFFERENCE
I1 BACKFILL TRENCHES	71	30	41
I4 DIG TRENCHES FOR BURIED CABLE SYSTEMS	70	29	41
H21 POSITION CABLE REELS ON JACKS	65	28	37
H28 REMOVE OR REPLACE UNDERGROUND CABLES	63	26	37
H25 PULL IN CABLES	63	28	35
G32 LOAD, TRANSPORT, OR UNLOAD CABLE REELS	65	30	35
B24 PREPARE AIRMAN PERFORMANCE REPORTS (APR)	15	75	-60
B12 DRAFT CORRESPONDENCE	10	59	-49
B4 ASSIGN WORK TO INDIVIDUALS	32	79	-47
D7 COUNSEL INDIVIDUALS ON TRAINING	17	64	-47
D6 CONDUCT ON-THE-JOB TRAINING (OJT)	26	69	-43
B5 CONDUCT OR PARTICIPATE IN STAFF MEETINGS	11	54	-43
E5 CERTIFY TEAM MEMBERS TO CLIMB AND WORK ALOFT	14	57	-43
E4 BRIEF TEAM MEMBERS ON JOB REQUIREMENTS	18	60	-42
C7 INSURE COMPLIANCE WITH TECHNICAL ORDER (TO) SPECIFICATIONS	22	64	-42
B30 RESEARCH PROCEDURES TO RESOLVE TECHNICAL PROBLEMS	17	57	-40
D15 MAINTAIN TRAINING PROGRESS AND QUALIFICATION RECORDS	11	50	-39
D25 REVIEW PROGRESS OF INDIVIDUALS TAKING CAREER DEVELOPMENT COURSES (CDC)	14	53	-39
D3 BRIEF PERSONNEL ON CHANGES IN METHODS OR PROCEDURES	15	53	-38
B36 SCHEDULE WORK ASSIGNMENTS	12	50	-38
B29 REPORT WORK STOPPAGES	14	50	-36

TOTAL NUMBER OF TASKS EXCEEDING 10 PERCENT DIFFERENCE: 107
 AVERAGE NUMBER OF TASKS PERFORMED BY 36150 PERSONNEL: 114
 AVERAGE NUMBER OF TASKS PERFORMED BY 36170 PERSONNEL: 119

TABLE 14

TASKS WHICH MOST CLEARLY DISTINGUISH BETWEEN 36170 AND 36199 PERSONNEL

TASKS	DAFSC 36170 (N=118)	DAFSC 36199 (N=23)	DIFFERENCE
L1 CHECK PLUMB OF ANTENNA SUPPORTS	65	9	56
F2 COMPLETE OPERATORS INSPECTION GUIDE AND TROUBLE REPORT FORMS (AFTO FORMS 373 OR 374)	67	17	50
L53 TEST GUY TENSION	58	9	49
L2 CLIMB ANTENNA SUPPORTS	62	13	49
K18 TEST COAXIAL CABLES FOR RESISTANCE INSULATION OR PROPER CONTINUITY	56	9	47
L38 PERFORM CORROSION CONTROL PROCEDURES ON ANTENNA SYSTEMS	51	4	47
L54 TEST PLUMB OF ANTENNA SUPPORTS	54	9	45
L18 INSPECT ANTENNA SUPPORTS	66	21	44
L37 PERFORM CORROSION CONTROL ON ANTENNA SUPPORT SYSTEMS	48	4	44
G11 INSPECT CLIMBING EQUIPMENT	65	22	43
L40 PLUMB ANTENNA SUPPORTS OR TENSION GUYS	47	4	43
L20 INSPECT GUYS AND ANCHORS	64	21	42
K7 INSTALL COAXIAL CONNECTORS	46	4	42
L39 PERFORM PREVENTIVE MAINTENANCE ON ANTENNA SUPPORTS	46	4	42
G52 TIE KNOTS OR HITCHES IN ROPE	49	9	40
B6 CONDUCT STAFF STUDIES	14	61	-47
A12 ESTABLISH OPERATIONAL PROCEDURES, OFFICE INSTRUCTIONS, OR MAINTENANCE OPERATING INSTRUCTIONS (MOI)	26	65	-39
B15 INITIATE PERSONNEL ACTION REQUESTS	26	61	-35
A1 COMPUTE COSTS OF MANPOWER, MATERIALS, OR EQUIPMENT	31	65	-34

TOTAL NUMBER OF TASKS EXCEEDING 10 PERCENT DIFFERENCE: 108

AVERAGE NUMBER OF TASKS PERFORMED BY 36170: 119

AVERAGE NUMBER OF TASKS PERFORMED BY 36199: 66

ANALYSIS OF TASK DIFFICULTY

From a listing of personnel identified for the 361X0 job survey, airmen primarily holding the 7-skill level from various locations and commands were selected to rate task difficulty. Tasks were rated on a nine-point scale from extremely low to extremely high difficulty. Difficulty is defined as the length of time it takes an average career ladder member to learn to do the task. Interrater reliability (as assessed through components of variance of standardized group means) among the 40 raters was .93. Ratings were adjusted so that tasks of average difficulty have ratings of 5.00.

A listing of representative tasks rated above average in difficulty which were performed by more than 40 percent of the total sample appears in Table 15. As expected, the majority of management, supervision, and training-related tasks were rated above average in difficulty. In addition, antenna-related tasks were also rated above average but were generally performed by low percentages of respondents. For example, 93 percent of radome-related tasks had above average task difficulty ratings but were performed by less than 25 percent of all personnel. Eighty-two percent of parabolic antenna tasks were rated above average, but less than 20 percent of all members performed these tasks.

On the other hand, all vehicle maintenance and inspection-related tasks and a majority of buried cable tasks were rated below average in difficulty. In general, cable-related tasks tended to be rated less difficult than antenna tasks. Tasks rated below average in difficulty performed by more than 50 percent of the total sample are listed in Table 16. Notice that the vehicle maintenance and inspection tasks are rated least difficult.

Job Difficulty Index (JDI)

In addition to reviewing the relative difficulty of tasks, it is useful to examine the relative difficulty of jobs. To obtain a relative Job Difficulty Index (JDI), the task difficulty ratings for tasks performed and the time spent on those tasks by specified job groups were entered into a statistically reliable formula which predicts overall job difficulty. The resultant JDIs provide a relative measure of how jobs vary in difficulty when compared to other jobs identified in the sample. The index ranks jobs on a scale of one (for very easy jobs) to 25 (for very difficult jobs). The indices are then adjusted so that the average JDI is 13.00. Individual JDIs were computed for each DAFSC group and for the major job groups identified in the CAREER LADDER STRUCTURE section of this report. These indices are listed in Table 17.

Cable and Antenna Team Chiefs (Cluster I) had the highest computed job difficulty of 17.1. This high JDI resulted from the large number of highly difficulty technical tasks performed, the large number of supervisory tasks which were rated slightly above average, and the large total number of tasks performed (average 153). Frequently performed tasks by members of this cluster include: installing parabolic antenna and coaxial transmission lines, resolving technical problems, and designing methods to improve procedures. Cluster II, Cable and Antenna Installers and Maintainers, had the second highest JDI (14.9) primarily because of the large number of tasks performed. Their average of 159 tasks performed was the highest of any cluster. Difficult tasks performed by Cluster II personnel include: erecting antenna support poles, installing coaxial connectors and lash cables. Cable and Antenna Supervisory Personnel (Cluster V) had an average JDI of 12.8. While these supervisors perform some of the difficult supervisory tasks, they did not perform as many tasks, nor did they perform the difficult technical tasks performed by members of Cluster I. The lowest JDI rating was given to Cluster III, Cable Installers. This group averaged fewer tasks (50), and most of these were cable construction tasks which were rated less than average in difficulty. The only two tasks performed by more than 50 percent of the members of this cluster which were above average in difficulty were climbing cable support structures and installing underground cable.

Examination of DAFSC groups revealed a similar trend. DAFSC 36130 personnel received the lowest JDI rating of 10.8 as they performed the fewest average number of tasks (84) and the least difficult ones. Five-skill level personnel received the second highest rating of 12.9 primarily because of the large number of tasks performed (113). The DAFSC group with the highest JDI was 36170s with a rating of 14.7. This, again, was primarily because of their large number of tasks performed (average 119) and the relative difficulty of these tasks.

TABLE 15

TASKS RATED ABOVE AVERAGE IN DIFFICULTY (5.00) WHICH ARE PERFORMED BY
MORE THAN 40 PERCENT OF TOTAL SAMPLE

TASKS	DIFFICULTY INDEX	PERCENT PERFORMING	
		TOTAL SAMPLE	FIRST ENLISTMENT PERSONNEL
K7 INSTALL COAXIAL CONNECTORS	5.73	52	55
G1 CLIMB CABLE SUPPORT STRUCTURES OR POLES	5.57	72	84
K14 REMOVE OR REPLACE COAXIAL CONNECTORS	5.51	47	51
G17 INSTALL LASH CABLES	5.48	43	55
L16 FABRICATE OR INSTALL GUYS AND ANCHORS	5.46	48	55
L31 INSTALL SAFETY CLIMBING DEVICES	5.35	49	65
G45 REMOVE OR REPLACE SUSPENSION STRANDS	5.28	40	50
G43 REMOVE OR REPLACE AERIAL CABLES	5.21	43	56
I20 REMOVE OR REPLACE BURIED CABLES	5.20	43	57
L45 REMOVE OR REPLACE GUYS AND ANCHORS	5.20	40	44
G5 ERECT POLES USING POWER OR HAND EQUIPMENT	5.16	52	66
G30 LASH CABLE BY DIRECT METHOD USING LASHING MACHINES	5.15	42	55
H13 INSTALL UNDERGROUND CABLES	5.10	47	64
L1 CHECK PLUMB OF ANTENNA SUPPORTS	5.04	54	53

TABLE 16

TASKS RATED BELOW AVERAGE IN DIFFICULTY (5.00) WHICH ARE PERFORMED BY
MORE THAN 50 PERCENT OF TOTAL SAMPLE

TASKS	DIFFICULTY INDEX	PERCENT PERFORMING	
		TOTAL SAMPLE	FIRST ENLISTMENT PERSONNEL
L17 INSPECT ANTENNA SUPPORT FIXTURES	4.97	58	57
G15 INSTALL GUYS ON POLE LINES	4.93	50	66
L18 INSPECT ANTENNA SUPPORTS	4.83	60	59
I11 INSTALL BURIED CABLES USING OPEN TRENCH METHODS	4.83	55	71
G12 INSTALL AERIAL CABLE HARDWARE	4.79	52	67
G32 LOAD, TRANSPORT, OR UNLOAD CABLE REELS	4.74	55	70
G50 SPLICE FIBER OR WIRE ROPE	4.72	50	63
H28 REMOVE OR REPLACE UNDERGROUND CABLES	4.69	52	72
L19 INSPECT ANTENNA TOWER BASES	4.57	57	55
H25 PULL IN CABLES	4.56	53	70
L37 PERFORM CORROSION CONTROL ON ANTENNA SUPPORT SYSTEMS	4.48	53	56
L53 TEST GUY TENSION	4.46	60	65
L20 INSPECT GUYS AND ANCHORS	4.42	63	66
G13 INSTALL ANCHORS	4.39	54	68
G3 DIG ANCHOR OR POLE HOLES USING POWER EQUIPMENT	4.33	52	63
I4 DIG TRENCHES FOR BURIED CABLE SYSTEMS	4.33	59	76
G37 MEASURE STRAND TENSION	4.23	54	66
C6 INSPECT VEHICLES FOR CONDITION OR SERVICEABILITY	4.02	54	48
H3 CLEAN OR ROD DUCTS	3.98	51	70
F10 INSPECT WINCHES	3.96	60	64
G52 TIE KNOTS OR HITCHES IN ROPE	3.93	72	87
G22 INSTALL POLE STEPS	3.75	51	67
I1 BACKFILL TRENCHES	3.56	59	78
G2 DIG ANCHOR OR POLE HOLES BY HAND	3.42	52	63
F12 PERFORM VISUAL INSPECTIONS OF HYDRAULIC SYSTEMS ON CONSTRUCTION VEHICLES	3.39	51	54
F2 COMPLETE OPERATOR'S INSPECTION GUIDE AND TROUBLE REPORT FORMS (AFTO FORMS 373 OR 374)	2.38	62	61
F1 CHANGE VEHICLE TIRES	2.27	52	61

TABLE 17

JOB DIFFICULTY INDICES FOR SPECIALTY AND CAREER LADDER FUNCTIONAL GROUPS

GROUP	JOB DIFFICULTY INDEX
CAREER LADDER JOB GROUPS	
I. CABLE AND ANTENNA TEAM CHIEFS	17.1
II. CABLE AND ANTENNA INSTALLERS AND MAINTAINERS	14.9
III. CABLE INSTALLERS	6.4
IV. ANTENNA INSTALLERS AND MAINTAINERS	10.4
V. CABLE AND ANTENNA SUPERVISORY PERSONNEL	12.8
a. Branch Supervisors and Team Chiefs	13.3
b. Quality Assurance Personnel	13.3
c. Superintendents	11.3
IV. TRAINING PERSONNEL AND TECHNICAL ADVISORS	12.7
AIR FORCE DAFSC GROUPS	
36130	10.8
36150	12.9
36170	14.7

ANALYSIS OF AFMS GROUPS

Utilization patterns for survey respondents in various AFMS groups were reviewed to determine differences in tasks performed. No major deviations from the expected pattern of supervision-related tasks and duties increasing with time in service were noted. As expected, individuals with less time in service spent more time on technically oriented duties.

One interesting phenomenon noted was the relative time spent on duties and tasks performed on cable- versus antenna-related functions (See Table 18). First enlistment (1-48 months AFMS) airmen spent more time on cable-related duties than did other enlistment groups. By the second enlistment, time spent on cable and antenna-related tasks and duties had almost equalized. By the fourth enlistment (145-192 months AFMS) antenna-related tasks and duties consumed more time than cable-related ones.

First Job Assignment Personnel

First job assignment (6-24 months AFMS) airmen performed the less difficult technical tasks related to cable and antenna installation and maintenance. Eighty-eight percent of these 6-24 months AFMS airmen fall into one of three job clusters. Cluster II, Cable and Antenna Installers and Maintainers contained the majority (63 percent) of first assignment airmen. The group of Cable Installers was the most junior job cluster, composed of 73 percent first assignment personnel, while the Antenna Installers and Maintainers cluster was composed of only 30 percent first job airmen.

Representative tasks performed by 60 percent or more of 361X0 personnel in their first job assignment are listed in Table 19. These tasks are all technical in nature, and include a greater emphasis on cable-related tasks than antenna-related tasks.

Equipment usage among first job personnel is presented in Tables 20 through 24. These tables indicate trends similar to the ones indicated by Table 18. First job personnel use cable-related equipment most frequently, followed by antenna-related equipment. As noted in Table 20, over 50 percent of first job personnel install or maintain log periodic (rotatable), ultra high frequency, and very high frequency antennas.

Job Satisfaction Data

Job interest, perceived utilization of talents and training, and reenlistment intentions for AFMS groups are presented in Table 25, along with comparative sample data taken from all mission equipment maintenance career ladders surveyed in 1977. (These sample career ladders included ones in the following fields: 30XXX, 31XXX, 32XXX, 34XXX, 36XXX, 40XXX, 42XXX, 43XXX, 44XXX, and 46XXX.) When compared with the mission equipment maintenance sample group, 361X0 airmen feel their job is as interesting as the 1977 sample, and believe their job uses their talents and training slightly better. Their reenlistment intentions were approximately equal to the 1977 sample. In keeping with the comparative sample's trends, Outside Wire and Antenna Maintenance personnel rated job satisfaction indices increasingly higher as their AFMS months increased. Overall, the majority of 361X0 find their job interesting (77 percent), feel their job utilizes their talents fairly well to very well (59 percent), believe their job utilizes their training fairly well to very well (56 percent), and plan to reenlist or probably reenlist (67 percent).

TABLE 18

PERCENT TIME SPENT PERFORMING DUTIES BY AFMS GROUPS

DUTIES	MONTHS AFMS					
	1-48 (N=295)	49-96 (N=98)	97-144 (N=58)	145-192 (N=48)	193-240 (N=39)	241+ (N=45)
<u>MANAGEMENT, SUPERVISION, AND ADMINISTRATION</u>						
A ORGANIZING AND PLANNING	1	4	3	7	9	11
B DIRECTING AND IMPLEMENTING	2	9	11	20	22	29
C EVALUATING AND PERFORMING QUALITY ASSURANCE FUNCTIONS	2	4	4	5	9	17
D TRAINING	1	5	7	11	7	14
E PERFORMING TEAM CHIEF OR FLIGHT CHIEF FUNCTIONS	2	5	9	16	11	6
TOTAL	8	27	34	59	58	77
<u>VEHICLE MAINTENANCE AND INSPECTION</u>						
F MAINTAINING AND INSPECTING OUTSIDE PLANT CONSTRUCTION VEHICLES	5	6	5	4	4	4
<u>CABLE-RELATED FUNCTIONS</u>						
G INSTALLING, MAINTAINING, REMOVING, AND RECOVERING AERIAL CABLE SYSTEMS	24	17	14	7	7	3
H INSTALLING UNDERGROUND CABLE SYSTEMS	15	7	9	3	6	2
I INSTALLING AND MAINTAINING BURIED CABLE SYSTEMS	11	7	6	3	4	3
J INSTALLING, MAINTAINING AND REMOVING OPEN WIRE TRANSMISSION LINES	3	2	2	1	1	1
TOTAL	53	33	31	14	18	9
<u>ANTENNA-RELATED FUNCTIONS</u>						
K INSTALLING AND REMOVING COAXIAL TRANSMISSION LINES	7	8	6	4	5	1
L INSTALLING, MAINTAINING, REMOVING, AND RECOVERING ANTENNA SUPPORTS	19	18	16	13	10	6
M INSTALLING AND REMOVING WIRE ANTENNAS	3	3	3	2	2	1
N INSTALLING, MAINTAINING, AND REMOVING PARABOLIC ANTENNAS	1	2	2	1	1	1
O INSTALLING AND MAINTAINING RADOMES	2	1	1	1	1	-
P INSTALLING WAVEGUIDES	2	2	2	2	1	1
TOTAL	34	34	29	23	20	10

TABLE 19

REPRESENTATIVE TASKS PERFORMED BY 60 PERCENT OR MORE OF 361X0 PERSONNEL
IN THEIR FIRST JOB ASSIGNMENT
(6-24 MONTHS)

TASK	PERCENT MEMBERS PERFORMING
G11 INSPECT CLIMBING EQUIPMENT	88
G52 TIE KNOTS OR HITCHES IN ROPE	87
G1 CLIMB CABLE SUPPORT STRUCTURES OR POLES	84
I4 DIG TRENCHES FOR BURIED CABLE SYSTEMS	78
I1 BACKFILL TRENCHES	77
L2 CLIMB ANTENNA SUPPORTS	73
I11 INSTALL BURIED CABLES USING OPEN TRENCH METHODS	70
G32 LOAD, TRANSPORT, OR UNLOAD CABLE REELS	70
H28 REMOVE OR REPLACE UNDERGROUND CABLES	70
H3 CLEAN OR ROD DUCTS	68
H21 POSITION CABLE REELS ON JACKS	68
H25 PULL IN CABLES	67
G12 INSTALL AERIAL CABLE HARDWARE	66
I9 INSTALL BURIED CABLE MARKERS	65
I2 BEND OR ARRANGE CABLE FOR SPLICING	65
G13 INSTALL ANCHORS	65
G3 DIG ANCHOR OR POLE HOLES USING POWER EQUIPMENT	64
G15 INSTALL GUYS ON POLE LINES	63
G22 INSTALL POLE STEPS	63
G2 DIG ANCHOR OR POLE HOLES BY HAND	63
G37 MEASURE STRAND TENSION	63
G5 ERECT POLES USING POWER OR HAND EQUIPMENT	62
H22 POSITION CABLE REELS ON TRAILERS	61
L20 INSPECT GUYS AND ANCHORS	61
L53 TEST GUY TENSION	60
L31 INSTALL SAFETY CLIMBING DEVICES	60

TABLE 20

ANTENNAS INSTALLED AND MAINTAINED BY FIRST JOB PERSONNEL
(6-24 MONTHS AFMS)

<u>ANTENNA</u>	<u>PERCENT MEMBERS</u>	
	<u>INSTALLING</u>	<u>MAINTAINING</u>
BEVERAGE	10	8
DELTA MARCHED DOUBLET	40	38
DISCAGE	7	7
DISCONE DOUBLET	32	30
DOUBLE DOUBLET	28	26
DOUBLET DOUBLET	15	14
HARD MISSLE	5	8
LONG WIRE	23	23
LOG PERIODIC (FIXED)	44	42
LOG PERIODIC (ROTABLE)	50	52
MICROWAVE	28	29
MONOPOLE	24	29
PARABOLIC	42	39
RHOMBIC	45	47
SOFT MISSILE	5	9
TROPOSPHERIC SCATTER	11	11
ULTRA HIGH FREQUENCY (UHF)	60	55
VERTICLE RADIATOR	11	13
VERY HIGH FREQUENCY (VHF)	60	52

TABLE 21

TYPE OF TOWERS INSTALLED AND MAINTAINED BY FIRST JOB PERSONNEL
(6-24 MONTHS AFMS)

<u>TYPE OF TOWER</u>	<u>PERCENT MEMBERS</u>	
	<u>INSTALLING</u>	<u>MAINTAINING</u>
NONE	26	28
GUYED TOWERS UNDER 250 FEET	60	58
GUYED TOWERS OVER 250 FEET	32	30
SELF-SUPPORTING TOWERS UNDER 250 FEET	51	45
SELF-SUPPORTING TOWERS OVER 250 FEET	19	20

TABLE 22

CONSTRUCTION EQUIPMENT OPERATED BY FIRST JOB PERSONNEL
(6-24 MONTHS AFMS)

<u>CONSTRUCTION EQUIPMENT</u>	<u>PERCENT MEMBERS OPERATING</u>
SIX PACK 4 X 4	83
LOW PROFILE VEHICLES	58
COMBINATION POLE AND CABLE TRAILERS	56
HIGH PROFILE VEHICLES	53
HYDRAULIC CABLE TRAILERS	52
BACKHOES	43
TRENCHERS, DAVIS 1000	46
POLE TRAILERS	44

TABLE 23

TOOLS OR EQUIPMENT USED BY FIRST JOB PERSONNEL
(6-24 MONTHS AFMS)

<u>EQUIPMENT OR TOOLS</u>	<u>PERCENT MEMBERS USING</u>
CLIMBING EQUIPMENT	98
COFFIN HOISTS	93
SNATCH BLOCKS	86
ELECTRIC SAWS	84
ELECTRIC DRILLS	84
CABLE JACKS	80
CABLE REEL TRAILERS	77
CABLE LASHERS	71
SAFETY KITS	64
WALKING OR MEASUREMENT WHEELS	64
WATER PUMPS	63
TRAFFIC WARNING DEVICES	63
TORQUE WRENCHES	62
TRENCHING MACHINES	61
TAMPERS	60
TRANSITS	60
PORTABLE GENERATORS	54
IMPACT WRENCHES	53
CABLE CARS	52
TUBE CUTTERS	47
GMC LASHERS	44
HYDRAULIC POWERED TOOLS	44
TRACTOR BACKHOES	43
CABLE BENDERS	42
STENCIL KITS	42
TILT TRAILERS	41
SPLICERS HANDLINE AND BUCKET	40
PORTABLE VENTILATION BLOWERS	37
PORTABLE LIGHTING DEVICES	36
AIR POWERED HAND TOOLS	35
CHAINS SAWS	30
HEATERS	30

TABLE 24
TEST EQUIPMENT USED BY FIRST JOB PERSONNEL
(6-24 MONTHS AFMS)

<u>TEST EQUIPMENT</u>	<u>PERCENT MEMBERS USING</u>
MEGGERS	78
CARBON MONOXIDE DETECTORS	64
OHM METERS	63
DEFLECTION-TYPE STRAND DYNAMOMETERS	57
MULTIMETERS	56
COMBUSTIBLE GAS INDICATORS	45
PIPE AND CABLE LOCATORS	39
UNDERGROUND CABLE LOCATORS	35
PRESSURE TESTING GAGES	33
INLINE VOLTAGE STANDING WAVE RATIO (VSWR) TESTERS	30
GROUND RESISTANCE TEST SETS	27
FIELD STRENGTH METERS	26
PORTABLE PRESSURE TESTING KITS	24
TBA/5100 TOXIC AND COMBUSTIBLE GAS INDICATORS	22

TABLE 25

JOB INTEREST, PERCEIVED UTILIZATION OF TALENTS AND TRAINING, AND
REENLISTMENT INTENTIONS FOR AFMS GROUPS
(PERCENT RESPONDING)

MONTHS TOTAL ACTIVE FEDERAL SERVICE									
1st JOB (6-24 MONTHS AFMS)	1-48		49-96		97+				
	COMPARATIVE*		COMPARATIVE*		COMPARATIVE*				
	SAMPLE	361X0	SAMPLE	361X0	SAMPLE	361X0			
I FIND MY JOB:									
DULL	13	10	17	12	12	6			
SO-SO	19	17	21	21	16	12			
INTERESTING	63	68	62	66	72	77			
NO RESPONSE	5	5	-	1	-	5			
MY JOB UTILIZES MY TALENTS:									
NOT AT ALL OR VERY LITTLE	27	25	32	25	21	13			
FAIRLY WELL TO VERY WELL	70	70	64	68	71	59			
EXCELLENTLY OR PERFECTLY	3	5	4	7	8	25			
NO RESPONSE	-	-	-	-	-	3			
MY JOB UTILIZES MY TRAINING:									
NOT AT ALL OR VERY LITTLE	23	20	26	27	22	14			
FAIRLY WELL TO VERY WELL	68	70	67	62	63	56			
EXCELLENTLY OR PERFECTLY	8	9	7	10	10	27			
NO RESPONSE	1	1	-	1	-	3			
MY REENLISTMENT PLANS ARE TO:									
NOT OR PROBABLY NOT REENLIST	68	67	61	34	35	30			
TO REENLIST OR PROBABLY REENLIST	29	30	39	63	65	67			
NO RESPONSE	3	3	-	3	-	3			

* THE COMPARATIVE SAMPLE WAS TAKEN FROM ALL MISSION EQUIPMENT MAINTENANCE CAREER LADDERS SURVEYED IN 1977.

ANALYSIS OF CONUS VERSUS OVERSEAS GROUPS

CONUS and overseas 5-skill level airmen were found to be performing the same job, with some variations in emphasis. An analysis of tasks performed by the 282 CONUS members and the 85 overseas respondents holding DAFSC 36150 reflected only minor differences in time spent on duties, percent members performing tasks and using equipment, and background variables.

Although both CONUS and overseas groups performed an average of 114 tasks, CONUS airmen spent more time on cable-related duties while overseas personnel spent more time on antenna-related duties (See Table 26). This emphasis on cable-related functions stateside and antenna-related functions overseas is also reflected in the tasks performed. Approximately 30-40 percent more CONUS airmen performed cable-related tasks, while 20-33 percent more overseas airmen performed antenna-related tasks. Table 27 presents those tasks which most clearly distinguish between respondents stationed stateside and those overseas.

Analysis of equipment usage reveals that antennas are maintained by a larger percentage of overseas airmen in the majority of cases. Table 28 highlights the major differences in antenna maintenance between the two groups. However, antenna installation results are mixed. Some types of antennas are installed by a larger percentage of stateside airmen, while other antennas are installed by larger percentages of overseas airmen. Looking at towers installed and maintained (Table 29) we notice similar differences. A larger percentage of CONUS airmen install three types of towers, while a larger percentage of overseas airmen maintain guyed towers under 250 feet. When we consider other types of equipment usage, the distinction becomes clearer. Cable-related construction equipment (Table 30) is used by a larger percentage stateside airmen. Table 31 shows a larger proportion of CONUS personnel using cable-related tools and equipment, while nitrogen cylinders, used in conjunction with coaxial transmission lines, are used by a larger percentage of overseas airmen. Test equipment shows a similar trend (See Table 32). Gas and carbon monoxide detectors are primarily used in cable-related duties, while multimeters, ohm meters, and dynamometers and pressure testing gauges, which are used by a greater percentage of overseas airmen, are antenna-related.

Background variables were approximately the same for both groups. However, personnel stationed overseas, were slightly more senior, with the average grade being 3.9 versus 3.6 for CONUS airmen. One interesting background variable difference was that persons assigned to the career ladder by directed duty assignment (DDA) were assigned more frequently to stateside bases. Forty-seven percent of CONUS 5-skill levels entered the career ladder this way, whereas only 22 percent of overseas airmen entered via DDA.

TABLE 26

PERCENT TIME SPENT ON DUTIES WHICH MOST CLEARLY DISTINGUISH BETWEEN 36150
PERSONNEL STATIONED IN THE CONUS AND THOSE OVERSEAS

DUTY	TITLE	CONUS (N=282)	OVERSEAS (N=85)	DIFFERENCE
H	INSTALLING UNDERGROUND CABLE SYSTEMS	15	5	+10
G	INSTALLING, MAINTAINING, REMOVING, AND RECOVERING ANTENNA SUPPORTS	21	15	+ 7
I	INSTALLING AND MAINTAINING BURRIED CABLE SYSTEMS	10	7	+ 3
L	INSTALLING, MAINTAINING, REMOVING, AND RECOVERING ANTENNA SUPPORTS	17	25	- 8
K	INSTALLING AND REMOVING COAXIAL TRANSMISSION LINES	6	10	- 4
B	DIRECTING AND IMPLEMENTING	4	7	- 3

TABLE 27

TASKS WHICH MOST CLEARLY DISTINGUISH BETWEEN 36150 PERSONNEL STATIONED IN
THE CONUS AND THOSE OVERSEAS

TASKS	CONUS (N=282)	OVERSEAS (N=85)	DIFFERENCE
H28 REMOVE OR REPLACE UNDERGROUND CABLES	73	33	40
H26 PUMP OR CLEAN MANHOLES	69	29	40
H3 CLEAN OR ROD DUCTS	70	31	39
H25 PULL IN CABLES	71	35	36
H15 LUBRICATE CABLES	60	26	34
G21 POSITION CABLE REELS ON JACKS	73	39	34
H31 TEST MANHOLES FOR COMBUSTIBLE GASES	62	28	34
H17 PLACE MANHOLE GUARDS OR WARNING DEVICES	65	32	33
H13 INSTALL UNDERGROUND CABLES	64	32	32
H22 POSITION CABLE REELS ON TRAILERS	66	34	32
L19 INSPECT ANTENNA TOWER BASES	52	85	-33
L17 INSPECT ANTENNA SUPPORT FIXTURES	54	86	-32
M11 PERFORM CORROSION CONTROL ON WIRE ANTENNAS	28	58	-30
L18 INSPECT ANTENNA SUPPORTS	56	85	-29
K18 TEST COAXIAL CABLES FOR RESISTANCE INSULATION OR PROPER CONTINUITY	41	69	-28
P9 PERFORM CORROSION CONTROL WAVEGUIDES	20	47	-27
B17 MAINTAIN BENCH STOCKS OR TOOL CRIBS	10	36	-26
L38 PERFORM CORROSION CONTROL PROCEDURES ON ANTENNA SYSTEMS	50	76	-26
P3 INSPECT RIGID WAVEGUIDES	25	51	-26

TOTAL NUMBER OF TASKS EXCEEDING 10 PERCENT DIFFERENCES: 53

AVERAGE NUMBER OF TASKS PERFORMED BY 36150 PERSONNEL STATIONED IN THE CONUS: 114

AVERAGE NUMBER OF TASKS PERFORMED BY 36150 PERSONNEL STATIONED OVERSEAS: 114

TABLE 28

CONUS/OVERSEAS DIFFERENCES ON TYPE ANTENNA INSTALLED AND MAINTAINED
(PERCENT MEMBERS PERFORMING)

<u>ANTENNAS INSTALLED</u>	<u>CONUS (N=282)</u>	<u>OVERSEAS (N=85)</u>	<u>DIFFERENCE</u>
RHOMBIC	51	28	23
DISCONE DOUBLETT	34	18	16
LOG PERIODIC (FIXED)	44	34	10
LOG PERIODIC (ROTABLE)	59	48	11
LONG WIRE	28	46	-18
DOUBLE DOUBLET	37	54	-17
DOUBLET DOUBLET	16	27	-11
<u>ANTENNAS MAINTAINED</u>			
DELTA MATCHED DOUBLET	33	25	8
MONOPOLE	27	53	-26
DOUBLE DOUBLET	28	52	-24
LONG WIRE	20	42	-22
MICROWAVE	27	48	-21
LOG PERIODIC (ROTABLE)	58	74	-16

TABLE 29

CONUS/OVERSEAS DIFFERENCES ON TYPE TOWERS INSTALLED AND MAINTAINED
(PERCENT MEMBERS PERFORMING)

<u>TOWERS INSTALLED</u>	<u>CONUS (N=282)</u>	<u>OVERSEAS (N=85)</u>	<u>DIFFERENCE</u>
SELF-SUPPORTING UNDER 250 FEET	55	28	27
GUYED OVER 250 FEET	28	14	14
SELF-SUPPORTING OVER 250 FEET	16	6	10
<u>TOWERS MAINTAINED</u>			
GUYED UNDER 250 FEET	56	71	-15

TABLE 30

CONUS/OVERSEAS DIFFERENCES ON CONSTRUCTION EQUIPMENT OPERATED
(PERCENT MEMBERS PERFORMING)

	CONUS (N=282)	OVERSEAS (N=85)	DIFFERENCE
HYDRAULIC CABLE TRAILERS	56	32	24
POLE TRAILERS	51	27	24
TRECHERS, DAVIS 1000	45	25	20
TRACTOR TRAILERS, 2½ TON	26	8	18
HIGH PROFILE VEHICLES	54	40	14
HIGH REACH VEHICLES	26	12	14
SIX PACK 4 x 4	81	67	14

TABLE 31

CONUS/OVERSEAS DIFFERENCE ON TOOLS OR EQUIPMENT USED
(PERCENT MEMBERS PERFORMING)

	CONUS (N=282)	OVERSEAS (N=85)	DIFFERENCE
CABLE LASHERS	72	40	32
WATER PUMPS	69	38	31
CABLE REEL TRAILERS	73	42	31
TILT TRAILERS	42	15	27
CABLE CARS	58	32	26
TRENCHING MACHINES	59	33	26
IMPACT WRENCHES	55	35	20
AIR POWERED HAND TOOLS	37	18	19
NITROGEN CYLINDERS	28	47	-19
SPLICING TRUCKS	23	37	-14

TABLE 32

CONUS/OVERSEAS DIFFERENCES ON TEST EQUIPMENT USED
(PERCENT MEMBERS PERFORMING)

	CONUS (N=282)	OVERSEAS (N=85)	DIFFERENCE
COMBUSTIBLE GAS INDICATORS	63	29	34
CARBON MONOXIDE DETECTORS	56	32	24
TBA/5100 TOXIC AND COMBUSTIBLE GAS INDICATORS	28	12	16
MULTIMETERS	67	82	-15
OHM METERS	69	79	-10
CAM-LEVER STRAND DYNAMOMETERS	68	80	-12
PRESSURE TESTING GAGES	39	47	- 9

COMPARISON OF SURVEY DATA TO AFR 39-1 SPECIALTY DESCRIPTIONS

A proposed change to AFR 39-1, dated 20 June 1978, was reviewed and compared to the survey data. The change included a career ladder title change and terminology additions and deletions to update the descriptions to reflect career ladder changes.

The career ladder title change from "Outside Wire and Antenna Maintenance and Repair" to "Cable and Antenna Systems Installation/Maintenance" seemed appropriate and in keeping with a shift of tasks performed by AFS 361X0 personnel. Other recommended changes also seemed appropriate and are consistent with the findings of the current survey.

The following areas, however, were not sufficiently addressed in the recommended change:

- a. While the AFS 36150 specialty description mentioned open wire systems in paragraph 1 of the specialty summary, it did not mention this duty under paragraph 2, duties and responsibilities. Since 20 to 40 percent of 5-skill level personnel in the survey sample performed open wire tasks, it seems appropriate to include this within that paragraph.
- b. The AFS 36170 specialty description omitted any mention of supervision of open wire-related tasks. Since 7-skill level personnel supervise 5-skill level personnel actually performing open wire tasks, it seems appropriate to indicate open wire responsibilities in paragraph 1 and 2 of the specialty description.
- c. Another duty area which was omitted from the specialty descriptions is that of inspecting, maintaining, and operating specialized outside plant construction vehicles. Forty-five to 67 percent of 5- and 7-skill level personnel performed vehicle inspection and maintenance.
- d. Corrosion control of antennas and antenna supports was performed by 48 to 61 percent of 5- and 7-skill level personnel. Therefore it seems appropriate to mention corrosion control specifically in the duties and responsibilities section of both the 5- and 7-skill level specialty descriptions.
- e. Paragraph 2a of the 5-skill level specialty description omitted mention of maintenance of antenna supports. Task data show that maintenance-related tasks were performed by percentages of personnel approximately equal to those surveying and erecting antenna supports tasks. This fact should be recognized in the wording of the 5-skill level description.

In summary, the proposed change to AFR 39-1 is more descriptive and current than the older AFS description. However, consideration should be given to including additional statements, as listed above, that more accurately reflect the AFS 361XX career ladder incumbents' current duties and responsibilities.

A proposed change to AFR 39-1, dated 10 June 1970, was reviewed and compared to the survey data. The change included a career ladder description to reflect career ladder changes.

The career ladder title change from "Vehicle and Equipment Maintenance and Repair" to "Vehicle and Equipment Maintenance and Repair" was recommended. Other recommended changes were recommended appropriate and are consistent with the findings of the survey.

The following were, however, not sufficiently addressed in the recommended change:

1. While the AFS 361XX specialty description remained open and vacant in paragraph 1 of the specialty summary, it did not mention the duty under paragraph 1, duties and responsibilities. Since 30 to 40 percent of 5-skill level personnel in the survey were performing this duty, it seems appropriate to include this within that paragraph.

2. The AFS 361XX specialty description omitted any mention of operation of open water-tight tanks. Since 5-skill level personnel perform 5-skill level personnel actually performing open water tanks, it seems appropriate to include open water responsibilities in paragraph 1 and 2 of the specialty description.

3. Another duty was omitted from the specialty description. This is that of inspecting, maintaining, and operating specialized aircraft construction vehicles. Forty-five to 50 percent of 5- and 7-skill level personnel performed vehicle inspection and maintenance.

4. Correction control of antennas and antenna supports was performed by 50 to 60 percent of 5- and 7-skill level personnel. Therefore, it seems appropriate to mention correction control specifically in the duties and responsibilities section of both the 5- and 7-skill level specialty descriptions.

5. Paragraph 2a of the 5-skill level specialty description omitted mention of maintenance of antenna supports. Task data show that maintenance-related duties were performed by personnel of personnel approximately equal to those surveying and erecting antenna supports. This fact should be recognized in the wording of the 5-skill level description.

COMPARISON OF THE SPECIALTY TRAINING STANDARD (STS) WITH SURVEY RESULTS

A review of the current STS 361X0, dated 25 November 1975, was made for the 3-, 5-, and 7-skill levels. Assistance was provided by subject matter specialists at the Technical Training School who matched inventory tasks with STS tasks. Each of the STS subparagraphs containing task knowledge or performance requirements were compared to the survey results. Subparagraphs containing only general information or subject knowledge proficiency level requirements were not evaluated.

Overall, the STS appears to be up to date and complete in providing general training requirements. Most STS subparagraphs were supported by the survey data. However, several tasks listed in the inventory were not linked with specific subparagraphs, even though they did relate to the general subject area (specific STS paragraph number). These tasks should be examined by subject matter specialists to determine whether they are sufficiently important for inclusion in subparagraphs of the STS. Data reflecting the match between the STS and survey sample will be furnished the technical training school for this purpose.

COMPARISON OF CURRENT SURVEY TO 1974 SURVEY

✓ The results of this survey were compared to those of Occupational Survey Report (OSR) AFPT 90-361-035 dated September 1974. Although the number of groups reported in these two studies varied somewhat (six clusters in the 1978 study versus 13 in the 1974 study), the major job groups discussed in this report are very similar to those reported earlier (See Table 33). Job group titles have been changed from outside wire to cable in order to better reflect changes in career ladder emphasis. Both studies found several groups of cable and antenna technicians which comprised the majority of the sample. Both studies found cable and antenna team chiefs and supervisory personnel in essentially the same proportion. The previous study did not isolate training personnel and technical advisors as a separate group; however, this loosely associated group comprises only one percent of the current study.

It is apparent in reviewing the results from both surveys that the survey data has remained fairly stable over the years. With this stability in the data and as long as no major changes to the career ladder are imposed as a result of acquiring new equipment or restructuring with other related career ladders, a resurvey of this ladder should not be required for another five to seven years. ↙

TABLE 33
COMPARISON OF CAREER LADDER STRUCTURE FOR 1974 AND 1978 STUDIES

1978 STUDY (N=587)	PERCENT	1974 STUDY (N=451)	PERCENT
I. CABLE AND ANTENNA TEAM CHIEFS	8	ANTENNA INSTALLATION AND MAINTENANCE TEAM CHIEFS	1
		OUTSIDE WIRE TEAM CHIEFS	1
		OUTSIDE WIRE INSTALLATION II	2
II. CABLE AND ANTENNA INSTALLERS AND MAINTAINERS	47	GENERAL PURPOSE EXPERIENCED WORKER	30
		GENERAL MAINTENANCE	7
III. CABLE INSTALLERS	4	OUTSIDE WIRE INSTALLATION I	9
		OUTSIDE WIRE INSTALLATION III	1
		AERIAL CABLE SYSTEMS FUNCTIONS	1
		UNDERGROUND AND BURIED CABLE FUNCTIONS	1
IV. ANTENNA INSTALLERS AND MAINTAINERS	16	ANTENNA MAINTENANCE PERSONNEL	14
V. CABLE AND ANTENNA SUPERVISORY PERSONNEL	14		
a. Branch Supervisors Team Chiefs	9	OPERATIONS SUPERVISORS	8
c. Superintendents	2	MAINTENANCE SUPERVISORS	6
b. Quality Assurance Personnel	1	QUALITY ASSURANCE PERSONNEL	1
VI. TRAINING PERSONNEL AND TECHNICAL ADVISORS	1	NOT MATCHED	-

APPENDIX A

I. CABLE AND ANTENNA TEAM CHIEFS - GRP111

This group of first-line supervisors spends approximately equal time supervising and performing technical tasks.

NUMBER IN GROUP:	48	AVERAGE GRADE:	5.1
PERCENT OF SAMPLE:	8%	AVERAGE TIME IN CAREER FIELD:	110 MONTHS
MAJCOM DISTRIBUTION:	AFCS 69% USAFE 10% OTHER 21%	AVERAGE TIME IN SERVICE:	139 MONTHS
LOCATION:	CONUS 40% OVERSEAS 60%	PERFECT MEMBERS IN FIRST ENLISTMENT:	42%
DAFSC DISTRIBUTION:	36130 2% 36150 40% 36170 56% 36199 2%	SUPERVISION:	73% SUPERVISE AVERAGE OF 3.9 SUBORDINATES
EXPRESSED JOB INTEREST:		DULL 6% SO-SO 15% INTERESTING 75% NOT REPORTED 4%	
PERCEIVED UTILIZATION OF TALENTS:		LITTLE OR NOT AT ALL 8% FAIRLY WELL TO VERY WELL 61% EXCELLENTLY OR PERFECTLY 36%	
PERCEIVED UTILIZATION OF TRAINING:		LITTLE OR NOT AT ALL 10% FAIRLY WELL TO VERY WELL 52% EXCELLENTLY OR PERFECTLY 36% NOT REPORTED 2%	
AVERAGE NUMBER OF TASKS PERFORMED:	153	JOB DIFFICULTY INDEX:	17.1

GROUP DIFFERENTIATING TASKS: (TASKS PERFORMED MORE BY THIS CLUSTER THAN OTHERS)

TASK NO.	TASK STATEMENT
F2	COMPLETE OPERATOR'S INSPECTION GUIDE AND TROUBLE REPORT FORMS (AFTO FORMS 373 OR 374)
C6	INSPECT VEHICLES FOR CONDITION OR SERVICEABILITY
B4	ASSIGN WORK TO INDIVIDUALS
E28	SAFEGUARD EQUIPMENT
E4	BRIEF TEAM MEMBERS ON JOB REQUIREMENTS
E5	CERTIFY TEAM MEMBERS TO CLIMB AND WORK ALOFT
L20	INSPECT GUYS AND ANCHORS
E12	DRAW OR TURN IN VEHICLES OR EQUIPMENT
L18	INSPECT ANTENNA SUPPORTS
D6	CONDUCT ON-THE-JOB TRAINING (OJT)
E2	ARRANGE FOR TRANSPORTATION OF EQUIPMENT OR PERSONNEL
E23	PREPARE TEAM CHIEF REPORTS

TIME SPENT ON DUTIES:

DUTY	TITLE	AVERAGE TIME SPENT BY MEMBERS OF GRP111
L	INSTALLING MAINTAINING, REMOVING, AND RECOVERING ANTENNA SUPPORTS	16
B	DIRECTING AND IMPLEMENTING	13
E	PERFORMING TEAM CHIEF OR FLIGHT FUNCTIONS	12
G	INSTALLING, MAINTAINING, REMOVING, AND RECOVERING AERIAL CABLE SYSTEMS	9
D	TRAINING	7
K	INSTALLING AND REMOVING COAXIAL TRANSMISSION LINES	6
C	EVALUATING AND PERFORMING QUALITY ASSURANCE FUNCTIONS	6
A	ORGANIZING AND PLANNING	5
F	MAINTAINING AND INSPECTING OUTSIDE PLANT CONSTRUCTION VEHICLES	5
I	INSTALLING AND MAINTAINING BURIED CABLE SYSTEMS	4
H	INSTALLING UNDERGROUND CABLE SYSTEMS	4
A1		

1. CABLE AND ANTENNA TEAM CHIEFS - GRP111 (CONTINUED)

PERCENT RESPONDING		PERCENT RESPONDING	
JOB TITLE DESCRIPTIONS MOST FREQUENTLY USED		CONSTRUCTION EQUIPMENT MOST FREQUENTLY OPERATED	
MAINTENANCE TEAM CHIEF	35	SIX PACK 4X4	75
MAINTENANCE TEAM MEMBER	19	HIGH PROFILE VEHICLES	48
ELECTRICAL INSTALLATION TEAM CHIEF	13	LOW PROFILE VEHICLES	42
BRANCH SUPERVISOR	10	COMBINATION POLE/CABLE TRL	40
ELECTRICAL INSTALLATION TEAM MEMBER	4	FORKLIFTS UP TO 20,000 LBS	31
		BACKHOES	29
PRESENT WORK ASSIGNMENTS MOST FREQUENTLY LISTED		HYDRAULIC CABLE TRAILERS	29
		NONE	17
OUTSIDE WIRE/ANTENNA MAINTENANCE TEAM CHIEF		TOOLS/EQUIPMENT MOST FREQUENTLY USED	
TEAM CHIEF	29	BLOCK AND TACKLE	96
NOIC OUTSIDE WIRE/ANTENNA MAINTENANCE	17	COFFIN HOISTS	96
OUTSIDE WIRE/ANTENNA MAINTENANCE, AND OTHER SIMILAR TITLES WITHOUT REFERENCE TO POSITION	54	CLIMBING EQUIPMENT	94
		SNATCH BLOCKS	92
		ELECTRIC DRILLS	90
JOB FUNCTIONS MOST FREQUENTLY ASSIGNED		CABLE JACKS	83
		NONE	0
ELECTRICAL INSTALLATION UNIT	21	TEST EQUIPMENT MOST FREQUENTLY USED	
MOBILE COMMUNICATIONS UNIT	8	CAM-LEVEL STRAND DYNAMOMETERS	85
BASE COMMUNICATIONS CENTER	6	MEGGERs	81
TAC ANTENNA TEAM	6	MULTIMETERS	77
TAC COMMUNICATIONS GROUP	4	PRESSURE TESTING GAGES	67
		NONE	4
TYPE ANTENNAS MOST FREQUENTLY INSTALLED			
VERY HIGH FREQUENCY (VHF)	69		
ULTRA HIGH FREQUENCY (UHF)	63		
DOUBLE DOUBLET	48		
LOG PERIODIC (ROTABLE)	44		
LOG PERIODIC (FIXED)	40		
NONE	15		
TYPE ANTENNAS MOST FREQUENTLY MAINTAINED			
ULTRA HIGH FREQUENCY (UHF)	75		
VERY HIGH FREQUENCY (VHF)	75		
LOG PERIODIC (ROTABLE)	63		
MICROWAVE	56		
DOUBLE DOUBLET	44		
LOG PERIOD (FIXED)	44		
MONOPOLE	44		
PARABOLIC	44		
LONG WIRE	40		
NONE	15		
TYPE TOWERS MOST FREQUENTLY INSTALLED			
GUYED TOWERS UNDER 250 FEET	69		
SELF-SUPPORTING TOWERS UNDER 250 FEET	42		
NONE	21		
TYPED TOWERS MOST FREQUENTLY MAINTAINED			
GUYED TOWERS UNDER 250 FEET	65		
SELF-SUPPORTING TOWERS UNDER 250 FEET	50		
NONE	21		

11. CABLE AND ANTENNA INSTALLERS AND MAINTAINERS - GRP064

This cluster is the largest group consisting of airmen who perform the greatest number of tasks. Members spend most their time installing cables, and 37 percent of their time in antenna-related technical tasks.

NUMBER IN GROUP:		277	AVERAGE GRADE:	3.6
PERCENT OF SAMPLE:		47%	AVERAGE TIME IN CAREER FIELD:	41 MONTHS
MAJCOM DISTRIBUTION:	AFCS	88%	AVERAGE TIME IN SERVICE:	51 MONTHS
	ATC	3%		
	OTHER	9%		
LOCATION:	CONUS	82%	PERCENT MEMBERS IN FIRST ENLISTMENT:	71%
	OVERSEAS	17%		
	NOT REPORTED	1%		
DAFSC DISTRIBUTION:	36130	13%	SUPERVISION:	11% SUPERVISE AN AVERAGE OF 4.7 SUBORDINATES
	36150	77%		
	36170	8%		
	36199	1%		
	NOT LISTED	1%		
EXPRESSED JOB INTEREST:			DULL	7%
			SO-SO	14%
			INTERESTING	74%
			NOT REPORTED	5%
PERCEIVED UTILIZATION OF TALENTS:			LITTLE OR NOT AT ALL	18%
			FAIRLY WELL TO VERY WELL	74%
			EXCELLENTLY OR PERFECTLY	7%
			NOT REPORTED	1%
PERCEIVED UTILIZATION OF TRAINING:			LITTLE OR NOT AT ALL	12%
			FAIRLY WELL TO VERY WELL	74%
			EXCELLENTLY OR PERFECTLY	13%
			NOT REPORTED	1%
AVERAGE NUMBER OF TASKS PERFORMED:		159	JOB DIFFICULTY INDEX:	14.9

GROUP DIFFERENTIATING TASKS: (TASKS PERFORMED MORE BY THIS CLUSTER THAN OTHERS)

TASK

NO. TASK STATEMENT

G1	CLIMB CABLE SUPPORT STRUCTURE OR POLES
I1	BACKFILL TRENCHES
I4	DIG TRENCHES FOR BURIED CABLE SYSTEMS
I11	INSTALL BURIED CABLES USING OPEN TRENCH METHODS
H25	PULL IN CABLES
H21	POSITION CABLE REELS ON JACKS
G32	LOAD, TRANSPORT, OR UNLOAD CABLE REELS
H3	CLEAN OR ROD DUCTS

TIME SPENT ON DUTIES:

DUTY TITLE

AVERAGE TIME SPENT BY MEMBERS OF GRP064

G	INSTALLING, MAINTAINING, REMOVING, AND RECOVERING AERIAL CABLE SYSTEMS	24
H	INSTALLING UNDERGROUND CABLE SYSTEMS	16
L	INSTALLING, MAINTAINING, REMOVING, AND RECOVERING ANTENNA SUPPORTS	16
I	INSTALLING AND MAINTAINING BURIED CABLE SYSTEMS	11
K	INSTALLING AND REMOVING COAXIAL TRANSMISSION LINES	7
F	MAINTAINING AND INSPECTING OUTSIDE PLANT CONSTRUCTION VEHICLES	6
J	INSTALLING, MAINTAINING AND REMOVING OPEN WIRE TRANSMISSION LINES	3

11. CABLE AND ANTENNA INSTALLERS AND MAINTAINERS - GRP064 (CONTINUED)

	PERCENT RESPONDING		PERCENT RESPONDING
<u>JOB TITLE DESCRIPTIONS MOST FREQUENTLY USED</u>		<u>CONSTRUCTION EQUIPMENT MOST FREQUENTLY OPERATED</u>	
ELECTRICAL INSTALLATION TEAM MEMBER	42	SIX PACK 4X4	88
MAINTENANCE TEAM MEMBER	30	LOW PROFILE VEHICLES	75
ELECTRICAL INSTALLATION TEAM CHIEF	7	HYDRAULIC CABLE TRAILERS	68
MAINTENANCE TEAM CHIEF	3	COMBINATION POLE/CABLE TRAILER	67
		HIGH PROFILE VEHICLES	67
<u>JOB FUNCTIONS MOST FREQUENTLY PERFORMED</u>		POLE TRAILERS	64
ELECTRICAL INSTALLATION UNIT	62	TRENCHES, DAVIS 1000	56
BASE COMMUNICATIONS CENTER	6	BACKHOES	52
TAC ANTENNA TEAM	3	FARM EQUIPMENT	34
ADC COMMUNICATIONS GROUP	2	TRACTOR TRAILER 2½ TON	34
MOBILE COMMUNICATIONS UNIT	2	TRENCHES, J-36	33
		HIGH REACH VEHICLES	32
		NONE	8
<u>TYPE ANTENNAS MOST FREQUENTLY INSTALLED</u>		<u>TOOLS OR EQUIPMENT MOST FREQUENTLY USED</u>	
ULTRA HIGH FREQUENCY (UHF)	78	CLIMBING EQUIPMENT	97
LOG PERIODIC (ROTABLE)	69	COFFIN HOISTS	96
VERY HIGH FREQUENCY (VHF)	67	SNATCH BLOCKS	94
RHOMBIC	64	BLOCK AND TACKLES	91
DELTA MATCHED DOUBLET	56	CABLE JACKS	91
LOG PERIODIC (FIXED)	55	ELECTRIC DRILLS	89
DOUBLET DOUBLET	48	CABLE REEL TRAILERS	87
PARABOLIC	47	CABLE LASHERS	83
DISCONE DOUBLET	42	TRAFFIC WARNING DEVICES	81
MICROWAVE	40	WALKING OR MEASUREMENT WHEELS	81
NONE	6	NONE	1
<u>TYPE ANTENNAS MOST FREQUENTLY MAINTAINED</u>		<u>TEST EQUIPMENT USED</u>	
LOG PERIODIC (ROTABLE)	56	MEGGERs	86
ULTRA HIGH FREQUENCY (UHF)	54	STRAND DYNAMOMETERS	74
VERY HIGH FREQUENCY (VHF)	52	OHM METERS	74
RHOMBIC	51	GAS INDICATORS	68
LOG PERIODIC (FIXED)	42	PRESSURE TESTING GAGES	67
NONE	24	MULTIMETERS	65
<u>TYPE TOWERS FREQUENTLY INSTALLED</u>		CARBON MONOXIDE DETECTORS	64
CUYED TOWERS UNDER 250 FEET	69	PIPE AND CABLE LOCATORS	50
SELF-SUPPORTING TOWERS UNDER 250 FEET	64	NONE	3
CUYED TOWERS OVER 250 FEET	37		
SELF-SUPPORTING TOWERS OVER 250 FEET	21		
NONE	17		
<u>TYPE TOWERS MOST FREQUENTLY MAINTAINED</u>			
CUYED TOWERS UNDER 250 FEET	56		
SELF-SUPPORTING TOWERS UNDER 250 FEET	51		
CUYED TOWERS OVER 250 FEET	28		
NONE	29		

III. CABLE INSTALLERS - GRP056

This cluster is composed of personnel who perform the heavy construction tasks of cable installation.

<u>NUMBER IN GROUP:</u>	22	<u>AVERAGE GRADE:</u>	3.1
<u>PERCENT OF SAMPLE:</u>	4%	<u>AVERAGE TIME IN CAREER FIELD:</u>	18 MONTHS
<u>MAJCOM DISTRIBUTION:</u>	AFCS 82%	<u>AVERAGE TIME IN SERVICE:</u>	28 MONTHS
	ATC 5%		
	OTHER 13%		
<u>LOCATION:</u>	CONUS 100%	<u>PERCENT MEMBERS IN FIRST ENLISTMENT:</u>	86%
<u>DAFSC DISTRIBUTION:</u>	36130 18%	<u>SUPERVISION:</u>	0% SUPERVISE
	36150 77%		
	36170 0%		
	36199 0%		
	NOT LISTED 5%		
<u>EXPRESSED JOB INTEREST:</u>		DULL	27%
		SO-SO	23%
		INTERESTING	50%
<u>PERCEIVED UTILIZATION OF TALENTS:</u>		LITTLE OR NOT AT ALL	36%
		FAIRLY WELL TO VERY WELL	64%
		EXCELLENTLY OR PERFECTLY	0%
<u>PERCEIVED UTILIZATION OF TRAINING:</u>		LITTLE OR NOT AT ALL	36%
		FAIRLY WELL TO VERY WELL	64%
		EXCELLENTLY OR PERFECTLY	0%
<u>AVERAGE NUMBER OF TASKS PERFORMED:</u>	40	<u>JOB DIFFICULTY INDEX:</u>	6.4

GROUP DIFFERENTIATING TASKS: (TASKS PERFORMED MORE BY THIS CLUSTER THAN OTHERS)

<u>TASK NO.</u>	<u>TASK STATEMENT</u>
I4	DIG TRENCHES FOR BURIED CABLE SYSTEMS
I1	BACKFILL TRENCHES
H25	PULL IN CABLES
H13	INSTALL UNDERGROUND CABLES
H28	REMOVE OR REPLACE UNDERGROUND CABLES
I11	INSTALL BURIED CABLES USING OPEN TRENCH METHODS
H3	CLEAN OR ROD DUCTS
G11	INSPECT CLIMBING EQUIPMENT

TIME SPENT ON DUTIES:

<u>DUTY</u>	<u>TITLE</u>	<u>AVERAGE TIME SPENT BY MEMBERS OF GRP056</u>
H	INSTALLING UNDERGROUND CABLE SYSTEMS	38
I	INSTALLING AND MAINTAINING BURIED CABLE SYSTEMS	23
G	INSTALLING, MAINTAINING, REMOVING, AND RECOVERING AERIAL CABLE SYSTEMS	17
L	INSTALLING, MAINTAINING, REMOVING, AND RECOVERING ANTENNA SUPPORTS	6
F	MAINTAINING AND INSPECTING OUTSIDE PLANT CONSTRUCTION VEHICLES	4

III. CABLE INSTALLERS - GRP056 (CONTINUED)

	PERCENT RESPONDING		PERCENT RESPONDING
<u>JOB TITLE DESCRIPTIONS MOST FREQUENTLY USED</u>		<u>TOOLS/EQUIPMENT MOST FREQUENTLY USED</u>	
ELECTRICAL INSTALLATION TEAM MEMBER	41	CLIMBING EQUIPMENT	100
MAINTENANCE TEAM MEMBER	36	CABLE JACKS	96
		COFFIN HOISTS	86
<u>JOB FUNCTIONS MOST FREQUENTLY ASSIGNED</u>		ELECTRIC DRILLS	82
ELECTRICAL INSTALLATION UNIT	73	SNATCH BLOCKS	82
BASE COMMUNICATIONS CENTER	5	NONE	0
MOBILE COMMUNICATIONS UNIT	5		
TAC COMMUNICATIONS GROUP	5	<u>TEST EQUIPMENT MOST FREQUENTLY USED</u>	
<u>TYPE ANTENNA MOST FREQUENTLY INSTALLED</u>		MEGGERs	63
ULTRA HIGH FREQUENCY (UHF)	64	MULTIMETERS	50
VERY HIGH FREQUENCY (VHF)	64	COMBUSTIBLE GAS INDICATORS	46
LOG PERIODIC (ROTABLE)	41	PIPE AND CABLE LOCATORS	41
PARABOLIC	36	NONE	23
NONE	14		
<u>TYPE ANTENNAS MOST FREQUENTLY MAINTAINED</u>			
LOG PERIODIC (ROTABLE)	41		
ULTRA HIGH FREQUENCY (UHF)	41		
VERY HIGH FREQUENCY (VHF)	36		
NONE	23		
<u>TYPE TOWERS MOST FREQUENTLY INSTALLED</u>			
SELF-SUPPORTING TOWERS UNDER 250 FEET	50		
GUYED TOWERS UNDER 250 FEET	46		
GUYED TOWERS OVER 250 FEET	23		
NONE	27		
<u>TYPE TOWERS MOST FREQUENTLY MAINTAINED</u>			
SELF-SUPPORTING TOWERS UNDER 250 FEET	46		
GUYED TOWERS UNDER 250 FEET	41		
GUYED TOWERS OVER 250 FEET	23		
NONE	36		
<u>CONSTRUCTION EQUIPMENT MOST FREQUENTLY OPERATED</u>			
SIX PACK 4X4	82		
LOW PROFILE VEHICLES	36		
COMBINATION POLE/CABLE TRAILER	36		
HIGH PROFILE VEHICLES	32		
HYDRAULIC CABLE TRAILERS	32		
TRENCHERS, DAVIS 1000	32		
NONE	0		

IV. ANTENNA INSTALLERS AND MAINTAINERS - GRP045

This group concentrates on antenna-related technical tasks, and is the second largest cluster.

<u>NUMBER IN GROUP:</u>	91	<u>AVERAGE GRADE:</u>	3.9
<u>PERCENT OF SAMPLE:</u>	16%	<u>AVERAGE TIME IN CAREER FIELD:</u>	51 MONTHS
<u>MAJCOM DISTRIBUTION:</u>	AFCS 68% USAFSS 15% OTHER 17%	<u>AVERAGE TIME IN SERVICE:</u>	66 MONTHS
<u>LOCATION:</u>	CONUS 52% OVERSEAS 47% NOT REPORTED 1%	<u>PERCENT MEMBERS IN FIRST ENLISTMENT:</u>	52%
<u>DAFSC DISTRIBUTION:</u>	36130 8% 36150 76% 36170 13% 36199 1% NOT LISTED 2%	<u>SUPERVISION:</u>	25% SUPERVISE AN AVERAGE OF 2.4 SUBORDINATES
<u>EXPRESSED JOB INTEREST:</u>		DULL 18% SO-SO 19% INTERESTING 63%	
<u>PERCEIVED UTILIZATION OF TALENTS:</u>		LITTLE OR NOT AT ALL 32% FAIRLY WELL TO VERY WELL 64% EXCELLENTLY OR PERFECTLY 4%	
<u>PERCEIVED UTILIZATION OF TRAINING:</u>		LITTLE OR NOT AT ALL 33% FAIRLY WELL TO VERY WELL 61% EXCELLENTLY OR PERFECTLY 6%	
<u>AVERAGE NUMBER OF TASKS PERFORMED:</u>	55	<u>JOB DIFFICULTY INDEX:</u>	10.4

GROUP DIFFERENTIATING TASKS: (TASKS PERFORMED MORE BY THIS CLUSTER THAN OTHERS)

TASK NO.	TASK STATEMENT
L20	INSPECT GUYS AND ANCHORS
L2	CLIMB ANTENNA SUPPORTS
L18	INSPECT ANTENNA SUPPORTS
L17	INSPECT ANTENNA SUPPORT FIXTURES
L19	INSPECT ANTENNA TOWER BASES
L39	PERFORM PREVENTIVE MAINTENANCE ON ANTENNA SUPPORTS
L37	PERFORM CORROSION CONTROL ON ANTENNA SUPPORT SYSTEMS
L38	PERFORM CORROSION CONTROL PROCEDURES ON ANTENNA SYSTEMS

TIME SPENT ON DUTIES:

DUTY	TITLE	AVERAGE TIME SPENT BY MEMBERS OF GRP045
L	INSTALLING, MAINTAINING, REMOVING, AND RECOVERING ANTENNA SUPPORTS	34
G	INSTALLING, MAINTAINING, REMOVING, AND RECOVERING AERIAL CABLE SYSTEMS	12
K	INSTALLING AND REMOVING COAXIAL TRANSMISSION LINES	10
B	DIRECTING AND IMPLEMENTING	7
F	MAINTAINING AND INSPECTING OUTSIDE PLANT CONSTRUCTION VEHICLES	5
E	PERFORMING TEAM CHIEF OR FLIGHT CHIEF FUNCTIONS	4
C	EVALUATING AND PERFORMING QUALITY ASSURANCE FUNCTIONS	4
I	INSTALLING AND MAINTAINING BURIED CABLE SYSTEMS	4
M	INSTALLING AND REMOVING WIRE ANTENNAS	4
H	INSTALLING UNDERGROUND CABLE SYSTEMS	4

IV. ANTENNA INSTALLERS AND MAINTAINERS - GRP045 (CONTINUED)

<u>JOB TITLE DESCRIPTIONS MOST FREQUENTLY USED</u>	<u>PERCENT RESPONDING</u>	<u>CONSTRUCTION EQUIPMENT MOST FREQUENTLY OPERATED</u>	<u>PERCENT RESPONDING</u>
MAINTENANCE TEAM MEMBER	64	SIX PACK 4x4	57
MAINTENANCE TEAM CHIEF	19	LOW PROFILE VEHICLES	26
ELECTRICAL INSTALLATION TEAM MEMBER	3	NONE	29
<u>JOB FUNCTIONS MOST FREQUENTLY ASSIGNED</u>		<u>TOOLS/EQUIPMENT MOST FREQUENTLY USED</u>	
BASE COMMUNICATIONS CENTER	21	CLIMBING EQUIPMENT	100
SECURITY SERVICE COMMUNICATIONS UNIT	12	COFFIN HOISTS	85
MISSILE COMMUNICATIONS GROUP	9	ELECTRIC DRILLS	82
ELECTRICAL INSTALLATION UNIT	8	BLOCK AND TACKLES	74
ADC COMMUNICATIONS GROUP	3	SNATCH BLOCKS	70
TAC ANTENNA TEAM	10	NONE	1
<u>TYPE ANTENNAS MOST FREQUENTLY INSTALLED</u>		<u>TEST EQUIPMENT MOST FREQUENTLY USED</u>	
VERY HIGH FREQUENCY (VHF)	55	MULTIMETERS	88
ULTRA HIGH FREQUENCY (UHF)	54	OHM METERS	70
DOUBLE DOUBLET	31	STRAND DYNAMOMETERS	65
LONG WIRE	31	MEGGERs	63
LOG PERIODIC (ROTABLE)	31	NONE	0
NONE	32		
<u>TYPE ANTENNAS MOST FREQUENTLY MAINTAINED</u>			
LOG PERIODIC (ROTABLE)	78		
ULTRA HIGH FREQUENCY (UHF)	74		
VERY HIGH FREQUENCY (VHF)	70		
MONOPOLE	55		
DOUBLE DOUBLET	44		
LOG PERIODIC (FIXED)	44		
NONE	2		
<u>TYPE TOWERS MOST FREQUENTLY INSTALLED</u>			
GUYED TOWERS UNDER 250 FEET	34		
NONE	57		
<u>TYPE TOWERS MOST FREQUENTLY MAINTAINED</u>			
GUYED TOWERS UNDER 250 FEET	70		
SELF-SUPPORTING TOWERS UNDER 250 FEET	31		
NONE	18		

V. CABLE AND ANTENNA SUPERVISORY PERSONNEL - GRP015

These supervisory personnel consist of branch supervisors and team chiefs who primarily manage and supervise, quality assurance personnel, and superintendents.

NUMBER IN GROUP:	83	AVERAGE GRADE:	6.3
PERCENT OF SAMPLE:	14%	AVERAGE TIME IN CAREER FIELD:	175 MONTHS
MAJCOM DISTRIBUTION:	AFCS 82%	AVERAGE TIME IN SERVICE:	205 MONTHS
	USAFSS 4%	PERCENT MEMBERS IN FIRST ENLISTMENT:	5%
	AAC 1%	SUPERVISION:	60% SUPERVISE AN AVERAGE OF 5.3 SUBORDINATES
	AFLC 1%		
	ATC 1%		
	OTHER 11%		
LOCATION:	CONUS 75%		
	OVERSEAS 25%		
DAFSC DISTRIBUTION:	36130 6%		
	36150 15%		
	36170 52%		
	36199 23%		
	NOT LISTED 4%		
EXPRESSED JOB INTEREST:	DULL 7%		
	SO-SO 17%		
	INTERESTING 69%		
	NOT REPORTED 7%		
PERCEIVED UTILIZATION OF TALENTS:	LITTLE OR NOT AT ALL 18%		
	FAIRLY WELL TO VERY WELL 52%		
	EXCELLENTLY OR PERFECTLY 25%		
	NOT REPORTED 5%		
PERCEIVED UTILIZATION OF TRAINING:	LITTLE OR NOT AT ALL 18%		
	FAIRLY WELL TO VERY WELL 51%		
	EXCELLENTLY OR PERFECTLY 28%		
	NOT REPORTED 3%		
AVERAGE NUMBER OF TASKS PERFORMED:	60	JOB DIFFICULTY INDEX:	12.8

GROUP DIFFERENTIATING TASKS: (TASKS PERFORMED MORE BY THIS CLUSTER THAN OTHERS)

TASK NO.	TASK STATEMENT
B24	REPAIR AIRMAN PERFORMANCE REPORTS (APR)
B30	SEARCH PROCEDURES TO RESOLVE TECHNICAL PROBLEMS
C7	ENSURE COMPLIANCE WITH TECHNICAL ORDER (TO) SPECIFICATIONS
B4	ASSIGN WORK TO INDIVIDUALS
B34	SCHEDULE LEAVES OR PASSES
B22	ORIENT NEWLY ASSIGNED PERSONNEL

TIME SPENT ON DUTIES:

DUTY	TITLE	AVERAGE TIME SPENT BY MEMBERS OF GRP015
B	DIRECTING AND IMPLEMENTING	31
C	EVALUATING AND PERFORMING QUALITY ASSURANCE FUNCTIONS	14
E	PERFORMING TEAM CHIEF OR FLIGHT CHIEF FUNCTIONS	13
A	ORGANIZING AND PLANNING	12
D	TRAINING	10
L	INSTALLING, MAINTAINING, REMOVING, AND RECOVERING ANTENNA SUPPORTS	6
G	INSTALLING, MAINTAINING, REMOVING, AND RECOVERING AERIAL CABLE SYSTEMS	4

V. CABLE AND ANTENNA SUPERVISORY PERSONNEL - GKP015 (CONTINUED)

JOB TITLE DESCRIPTIONS MOST FREQUENTLY USED	PERCENT RESPONDING	CONSTRUCTION EQUIPMENT MOST FREQUENTLY OPERATED	PERCENT RESPONDING
BRANCH SUPERVISORY	23	SIX PACK 4X4	51
ELECTRICAL INSTALLATION TEAM CHIEFS	16	HIGH PROFILE VEHICLES	40
WORKLOAD CONTROL SPECIALIST	10	LOW PROFILE VEHICLES	29
MAINTENANCE TEAM CHIEF	7	BACKHOES	28
MAINTENANCE TEAM MEMBER	4	HYDRAULIC CABLE TRAILERS	25
ELECTRICAL INSTALLATION TEAM MEMBER	1	POLE TRAILERS	25
		COMBINATION POLE/CABLE TRAILER	24
		TRENCHERS, DAVIS 1000	23
		NONE	48
<u>JOB FUNCTIONS MOST FREQUENTLY ASSIGNED</u>		<u>TOOLS/EQUIPMENT MOST FREQUENTLY USED</u>	
ELECTRICAL INSTALLATION UNIT	43	COFFIN HOISTS	51
MISSILE COMMUNICATIONS GROUP	12	ELECTRIC DRILLS	51
BASE COMMUNICATIONS CENTER	6	CLIMBING EQUIPMENT	49
MOBILE COMMUNICATIONS UNIT	2	NONE	43
SECURITY SERVICE COMMUNICATIONS UNIT	2		
TAC ANTENNA TEAM	2		
TAC COMMUNICATIONS GROUP	1		
<u>TYPE ANTENNAS MOST FREQUENTLY INSTALLED</u>		<u>TYPE EQUIPMENT MOST FREQUENTLY USED</u>	
VERY HIGH FREQUENCY (VHF)	36	MEGGERS	52
ULTRA HIGH FREQUENCY (UHF)	34	MULTIMETERS	51
DELTA MATCHED DOUBLET	30	NONE	37
LOG PERIODIC (ROTABLE)	30		
NONE	54		
<u>TYPE ANTENNAS MOST FREQUENTLY MAINTAINED</u>			
VERY HIGH FREQUENCY (VHF)	30		
ULTRA HIGH FREQUENCY (UHF)	29		
LOG PERIODIC (FIXED)	25		
LOG PERIODIC (ROTABLE)	22		
MONOPOLE	20		
NONE	53		
<u>TYPE TOWERS MOST FREQUENTLY INSTALLED</u>			
GUYED TOWERS UNDER 250 FEET	29		
SELF-SUPPORTED UNDER 250 FEET	25		
NONE	61		
<u>TYPE TOWERS MOST FREQUENTLY MAINTAINED</u>			
GUYED TOWERS UNDER 250 FEET	28		
SELF-SUPPORTING TOWERS UNDER 250	22		
NONE	57		

Va. BRANCH SUPERVISORS AND TEAM CHIEFS - GRP049

NUMBER IN GROUP:	50	AVERAGE GRADE:	6
PERCENT OF SAMPLE:	9%	AVERAGE TIME IN CAREER FIELD:	162 MONTHS
MAJCOM DISTRIBUTION:		AVERAGE TIME IN SERVICE:	194 MONTHS
AFCS	84%	PERCENT MEMBERS IN FIRST ENLISTMENT:	2%
USAFSS	4%	SUPERVISION:	76% SUPERVISE AN AVERAGE OF 6.1 SUBORDINATES
ATC	2%		
OTHER	10%		
LOCATION:			
CONUS	76%		
OVERSEAS	24%		
DAFSC DISTRIBUTION:			
36130	4%		
36150	16%		
36170	56%		
36199	22%		
NOT LISTED	2%		

EXPRESSED JOB INTEREST:	DULL	6%
	SO-SO	24%
	INTERESTING	64%

PERCEIVED UTILIZATION OF TALENTS:	LITTLE OR NOT AT ALL	16%
	FAIRLY WELL TO VERY WELL	56%
	EXCELLENTLY OR PERFECTLY	22%
	NOT REPORTED	6%

PERCEIVED UTILIZATION OF TRAINING:	LITTLE OR NOT AT ALL	16%
	FAIRLY WELL TO VERY WELL	54%
	EXCELLENTLY OR PERFECTLY	26%
	NOT REPORTED	4%

AVERAGE NUMBER OF TASKS PERFORMED:	75	JOB DIFFICULTY INDEX:	13.3
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GROUP DIFFERENTIATING TASKS: (TASKS PERFORMED MORE BY THIS CLUSTER THAN OTHERS)

TASK NO.	TASK STATEMENT
B4	ASSIGN WORK TO INDIVIDUALS
B24	PREPARE AIRMAN PERFORMANCE REPORTS (APR)
D25	REVIEW PROGRESS OF INDIVIDUALS TAKING CAREER DEVELOPMENT COURSES (CDC)
D7	COUNSEL INDIVIDUALS ON TRAINING PROGRESS
D6	CONDUCT ON-THE-JOB TRAINING (OJT)
B34	SCHEDULE LEAVES OR PASSES
D8	COUNSEL NEWLY ASSIGNED AIRMEN ON CAREER PROGRESSION AND EDUCATIONAL OPPORTUNITIES

TIME SPENT ON DUTIES:

DUTY	TITLE	AVERAGE TIME SPENT BY MEMBERS OF GRP049
B	DIRECTING AND IMPLEMENTING	29
E	PERFORMING TEAM CHIEF OR FLIGHT CHIEF FUNCTIONS	19
D	TRAINING	14
A	ORGANIZING AND PLANNING	10
C	EVALUATING AND PERFORMING QUALITY ASSURANCE FUNCTIONS	8
L	INSTALLING, MAINTAINING, REMOVING, AND RECOVERING ANTENNA SUPPORTS	6
G	INSTALLING, MAINTAINING, REMOVING, AND RECOVERING AERIAL CABLE SYSTEMS	5

Vb. QUALITY ASSURANCE PERSONNEL - GRP076

NUMBER IN GROUP:	13	AVERAGE GRADE:	6.9
PERCENT OF SAMPLE:	2%	AVERAGE TIME IN CAREER FIELD:	225 MONTHS
MAJCOM DISTRIBUTION:	AFCS 77%	AVERAGE TIME IN SERVICE:	240 MONTHS
	AAC 8%		
	OTHER 15%		
LOCATION:	CONUS 69%	PERCENT MEMBERS IN FIRST ENLISTMENT:	0%
	OVERSEAS 31%		
DAFSC DISTRIBUTION:	36130 0%	SUPERVISION:	31% SUPERVISE AN AVERAGE OF 2.5 SUBORDINATES
	36150 8%		
	36170 62%		
	36199 23%		
	NOT LISTED 7%		
EXPRESSED JOB INTEREST:		DULL	8%
		SO-SO	0%
		INTERESTING	85%
		NOT REPORTED	7%
PERCEIVED UTILIZATION OF TALENTS:		LITTLE OR NOT AT ALL	8%
		FAIRLY WELL TO VERY WELL	54%
		EXCELLENTLY OR PERFECTLY	31%
		NOT REPORTED	7%
PERCEIVED UTILIZATION OF TRAINING:		LITTLE OR NOT AT ALL	8%
		FAIRLY WELL TO VERY WELL	46%
		EXCELLENTLY OR PERFECTLY	39%
		NOT REPORTED	7%
AVERAGE NUMBER OF TASKS PERFORMED:	54	JOB DIFFICULTY INDEX:	13.3

GROUP DIFFERENTIATING TASKS: (TASKS PERFORMED MORE BY THIS CLUSTER THAN OTHERS)

TASK

NO. TASK STATEMENT

C18	REVIEW OR EVALUATE INSPECTION FINDINGS
C15	PREPARE OR PROCESS QUALITY ASSURANCE (QA) OR QUALITY CONTROL (QC)
C13	PREPARE INSPECTION REPORTS
C19	REVIEW OR EVALUATE MAINTENANCE OR INSTALLATION REPORTS
C7	INSURE COMPLIANCE WITH TECHNICAL ORDER (TO) SPECIFICATIONS
C11	PERFORM IN-PROGRESS INSPECTIONS DURING INSTALLATIONS
C9	PERFORM FINAL INSPECTIONS ON INSTALLATIONS OF ANTENNAS OR CABLE SYSTEMS
C12	PERFORM IN-PROGRESS INSPECTIONS DURING MAINTENANCE ACTIVITIES

TIME SPENT ON DUTIES:

DUTY TITLE

AVERAGE TIME SPENT BY MEMBERS OF GRP076

C	EVALUATING AND PERFORMING QUALITY ASSURANCE FUNCTIONS	37
B	DIRECTING AND IMPLEMENTING	16
L	INSTALLING, MAINTAINING, REMOVING, AND RECOVERING ANTENNA SUPPORTS	12
A	ORGANIZING AND PLANNING	8
F	MAINTAINING AND INSPECTING OUTSIDE PLANT CONSTRUCTION VEHICLES	6
D	TRAINING	4
G	INSTALLING, MAINTAINING, REMOVING, AND RECOVERING AERIAL CABLE SYSTEMS	4

Vc. SUPERINTENDENTS - GRP019

NUMBER IN GROUP:	12	AVERAGE GRADE:	7.6
PERCENT OF SAMPLE:	2%	AVERAGE TIME IN CAREER FIELD:	226 MONTHS
MAJCOM DISTRIBUTION:	AFCS 92%	AVERAGE TIME IN SERVICE:	271 MONTHS
	AFLC 8%		
LOCATION:	CONUS 67%	PERCENT MEMBERS IN FIRST ENLISTMENT:	0%
	OVERSEAS 33%		
DAFSC DISTRIBUTION:	36130 8%	SUPERVISION:	42% SUPERVISE AN AVERAGE OF 3.6 SUBORDINATES
	36150 0%		
	36170 33%		
	36199 42%		
	NOT LISTED 17%		
EXPRESSED JOB INTEREST:		DULL	17%
		SO-SO	8%
		INTERESTING	61%
		NOT REPORTED	8%
PERCEIVED UTILIZATION OF TALENTS:		LITTLE OR NOT AT ALL	25%
		FAIRLY WELL TO VERY WELL	33%
		EXCELLENTLY OR PERFECTLY	42%
PERCEIVED UTILIZATION OF TRAINING:		LITTLE OR NOT AT ALL	25%
		FAIRLY WELL TO VERY WELL	42%
		EXCELLENTLY OR PERFECTLY	33%
AVERAGE NUMBER OF TASKS PERFORMED:	21	JOB DIFFICULTY INDEX:	11.3

GROUP DIFFERENTIATING TASKS: (TASKS PERFORMED MORE BY THIS CLUSTER THAN OTHERS)

TASK

NO. TASK STATEMENT

A13 ESTABLISH PERSONNEL REQUIREMENTS
A2 COORDINATE COMMUNICATION REQUIREMENTS WITH BASE OR TENANT UNITS
C5 EVALUATE SUGGESTIONS
B30 RESEARCH PROCEDURES TO RESOLVE TECHNICAL PROBLEMS
A1 COMPUTE COSTS OF MANPOWER, MATERIALS, OR EQUIPMENT
B23 PREPARE ACTIONS TO RESOLVE PERSONNEL PROBLEMS SUCH AS MANNING LEVELS

TIME SPENT ON DUTIES:

DUTY TITLE

AVERAGE TIME SPENT BY MEMBERS OF GRP019

B	DIRECTING AND IMPLEMENTING	56
A	ORGANIZING AND PLANNING	23